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ABSTRACT

This study is a systematic follow-up, undertaken by the Chicago Consortium, to evaluate the classroom performance of its graduates. Inferences about their effectiveness were made through assessments of their observed behavior, using the Classroom Observation Record (COR) and the Flanders Interaction Analysis Categories (FIAC). Trained observers observed each graduate intern two times. They also obtained data on two control groups matched on important variables for comparative purposes: a) a random selection of teachers with similar experience, and b) experienced teachers who were designated superior. Outcomes of the study are as follows: no significant differences were found between the graduate interns and the two control groups on the FIAC. Significant differences, ranking superior teachers first and graduate interns second, were found on major variables of the COR; the most striking result was the sameness of the three study groups on the FIAC. Also noteworthy was the inability of superior teachers to display any of the distinguishing features of other superior groups cited in the research. The feasibility of using school system personnel as observers was demonstrated. School system cooperation, although difficult to give in the normal functioning of the schools, was excellent. Further research and innovative programs are recommended. A 32-item bibliography, tables, figures, and appendixes are included. (Author/MJM)

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FINAL REPORT

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EVALUATIVE FOLLOW-UP OF TEACHER CORPS INTERNS: AN ANALYSIS OF TEACHER BEHAVIOR

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ABSTRACT

This study is a systematic follow-up, undertaken by The Chicago Consortium, to evaluate the classroom performance of its graduates. Inferences about their effectiveness were made through assessments of their observed behavior, using the Classroom Observation Record and the Flanders Interaction Analysis Categories. Trained observers observed each Graduate Intern two times. They also obtained data on two control groups matched on important variables for comparative purposes: (1) a random selection of teachers with similar experience and (2) experienced teachers who were designated superior. Outcomes of the study are as follows:

1. No significant differences were found between the Graduate Interns and the two control groups on the FIAC. Significant differences, ranking superior teachers first and Graduate Interns second, were found on major variables of the COR.

2. The most striking result was the sameness of the three study groups on the FIAC. Also noteworthy was the inability of superior teachers to display any of the distinguishing features of other superior groups cited in the research.

The statistical profile of teaching behaviors compiled in this study will serve as a basis for inferences about professional training needs and hypotheses for future investigation.

The feasibility of using school system personnel as observers was demonstrated. School system cooperation, although difficult to give in the normal functioning of the schools, was excellent.

Major recommendations include the following: (1) future search for correlates of high predictive validity for the positive teacher behaviors displayed by Interns in this study; and (2) careful consideration by preservice curriculum makers and in-service supervisors of the need represented in the results of this study for new and innovative programs that will help teachers develop greater facility in guiding creative inquiry among pupils, become more sensitive to the feelings of pupils and increase their ability to verbalize empathy for children.

CHAPTER 1

INTRODUCTION

The Problem

The need for change in teacher education in America has never been greater than at present. Amid a steadily increasing barrage of criticism, there has been a growing awareness that traditional teacher education programs may not in fact have a desirable affect on the behaviors of teachers in the classroom at all. Early in the decade of the 60's provocative studies by Conant (12) and Koerner (20) were foremost in raising important questions about program evaluation. Koerner, in particular, made product evaluation a central issue in reform. He cited a deplorable lack of agreement between the actual performance of graduates and their training and called for programs relevant to the on-the-job performance of teachers.

Flanders (13, 347), commenting in a 1970 publication on a review by Cyphert and Spaights of 188 recent studies on teacher education, observed that the collection of evidence about the teaching behavior of those who complete a teacher education program is still an uncommon means of evaluating their preparation. Obviously the proliferation of new and innovative programs in the 60's infrequently included much more attention to program improvement through product evaluation than the traditional programs they replaced.

Paul Woodring in New Directions in Teacher Education has identified three levels of evaluation in teacher education: the program itself, competence of teacher education graduates, and the learning among children taught by them. The first of these has been the most popular form of evaluation. Most programs have turned to the inherent structure of the program, its philosophical bases and design, and the progress of students through it for evaluation. Where attention has been given to product evaluation, it is usually in the form of opinion surveys and self-reports by the participants. As helpful as such information may be, it does not yield the kind of objective and diagnostic feedback on performance that clearly defines behaviors in the classroom. J.W. Mackey (24, 69-70) contends that excellence in teacher education demands attention to results, systematically studied.

One of the clearest indications of the growing importance of product evaluation is seen in the recent revisions of the National Council for Accreditation of Teacher Education standards for teacher education programs. The NCATE, acting under authority of the National Commission on Accrediting and upon recommendations from the Evaluative Criteria Committee of the American Association of Colleges for Teacher Education, has given major emphasis to evaluation in their new standards recently issued.

Earlier versions of the standards were either silent or vague about evaluation and were in direct contrast to the following explicit statement found in the new standards:

> An institution committed to the preparation of teachers engages in systematic efforts to evaluate the quality of its graduates and those persons recommended for professional certification. The institution evaluates the teachers it produces at two critical points: when they complete their programs of study, and after they enter the teaching profession. (1, 12)

Clearly, one of the major functions in teacher education is the continual assessment and modification of its programs, and product evaluation is now and increasingly will be a vital part in the total process.

As one of the new programs addressed to the need for reform in teacher education, the Teacher Corps has early recognized the value of evaluation. In a progress report by the national office, a systematic follow-up of interns--one that includes analysis of the performance in the classroom as an important feature--was recommended. (32, 54) In sponsoring an objective follow-up study of the teaching skill of its trainees at this time, Chicago Consortium of Colleges and Universities is acting positively on the growing interest in objective feedback on graduate's effectiveness in the classroom.

The Chicago Consortium has served as an agent for the training of Teacher Corps Interns in the Chicago area since shortly after its inception in 1965. Six Chicago area colleges, acting on the suggestion of the USOE, formed the legal entity called the Chicago Consortium. It consists of the following colleges and universities:

> Chicago State University
> Concordia Teachers College
> DePaul University
> Loyola University
> Northeastern Illinois State College
> Roosevelt University

all of which are located in the Chicago area.

The Teacher Corps draws its candidates from college graduates who have had little or no formal preparation in teaching. Those accepted are placed in a two year program featuring intensive experience with disadvantaged children. A paid internship is an important part of the program and may be an incentive in attracting candidates. The program has grown in favor in cities where it has been installed. The Chicago Consortium started its sixth cycle in 1971-72, and has developed a fine rapport with the local school systems. The basic Teacher Corps curriculum has

also been used in the Urban Corps programs.

Teacher Corps programs are in contrast to conventional teacher education programs in that the latter typically involve a period of initial exposure to theoretical content on teaching and learning capped by a period of practice teaching. Where as in the apprentice type approach of the Teacher Corps curriculum immerses the trainee in actual experiences from the outset.

Teacher Corps programs have received criticism as well as praise--sometimes from the same source. In a report by a task force of the National Institute for Advanced Study in Teaching Disadvantaged Youth, the editor, B. Othanel Smith (30, 68), found the first hand experiences given trainees commendable, but criticized the program for putting the prospective teacher out in the streets in a way that may merely reinforce a cult of uniqueness and often prepared the trainee to see only the differences rather than the similarities. The lack of diagnostic information on the effectiveness of trainees is, in great measure, responsible for such ambivalence on the value of the Teacher Corps program. This study is addressed to such questions and should help to resolve doubts of the type raised by Smith.

Any assessment of graduates of a teacher education program should be made in terms of the stated objectives of the program in which they received their training. The Teacher Corps curriculum fostered by the Chicago Consortium has an ultimate aim that is twofold: (1) to develop within the prospective teacher an understanding of the disadvantaged child and (2) to translate such understanding into appropriate teacher behavior (11, 3).

Couched in the persistent demand for product evaluation in teacher education, such stated purposes heighten the need for a systematic follow-up of graduates of Teacher Corps programs--one focused on well defined teaching behaviors which can be observed in the classroom.

Objectives of the Study

There are two inseparable problems inherent in any follow-up study of the teaching behavior of graduates who are now in-service teachers. There is first the problem of obtaining reliable data on meaningful elements of their behavior, and second, enlisting the cooperation of the school system in gathering data. In this study attention is given to both.

The major objective of the study is the development of an objective base of information which may be used in the evaluation of the effectiveness of graduates and, ultimately, the Teacher Corps curricula developed by the Chicago Consortium. This objective base is to be in terms of a well defined set

of teaching behaviors which can be observed by trained observers and measured with a high degree of confidence in a systematic follow-up of graduates as teachers in the Chicago Public Schools.

General effectiveness might be revealed in efficiency reports, but it is doubtful that such information would be specific enough to facilitate product evaluation. The elements of teaching behavior which are measurable is a much more viable point of origin. Limitations must be recognized here too, for an attempt to include all in one study would be impractical. Campbell (10, 587) estimates that researchers have isolated 600 micro-elements in some 26 observational systems but only a few of these have been researched thoroughly enough to produce effective instruments. Moreover, the exigencies of time and economy of effort dictate that all elements cannot be studied at once. Preferably, a series of studies should be undertaken, each concentrating on a well defined set of elements of teaching for which well defined means of assessment are readily available.

This study is a reasonable first step in that it will yield insights on several important aspects of the teaching behavior of graduates of the Chicago Consortium which should be invaluable in program development for the future. It will also furnish data that, when combined with other variables, will provide many new insights into the totality of effective teaching.

After careful review of several techniques for measuring teaching behavior, it was decided to use the basic observational techniques developed by Flanders (6) and Ryans (26). The wealth of available research, the demonstrated success in training observers to a high level of reliability and the availability of models of successful training programs and practical training materials made the basic instruments, particularly the Flanders, more functional for this follow-up study than some of the more recent variations of assessment through observation.

There are three main patterns of teacher behavior explored in the Ryans technique that are useful in this study. They are:

Pattern X: warm, understanding, friendly vs. aloof, egocentric, restricted teacher behavior
Pattern Y: responsible, businesslike, systematic vs. evading, unplanned, slipshod teacher behavior.
Pattern Z: stimulating, imaginative, surgent or enthusiastic vs. dull, routine teacher behavior.

Pupil behavior and total behavior will also give some useful insights.

The Flanders system as perfected by Amidon and Flanders is characterized as follows:

1. It is concerned only with verbal behavior.
2. It is based on the assumption that verbal behavior

of the teacher and students is an adequate sample of their total behavior.

3. It is composed of ten verbal micro-elements on the psychological-sociological level, each mutally exclusive of the others. (6)

A description of the instruments and scoring will be given in Chapter 2 .

Models of effectiveness implicit in the trends shown by research on the Flanders and Ryans observational techniques serve as a good point of departure in assessing the effectiveness of the classroom behavior of Consortium graduates. It is well, however, to keep in mind that teaching is extremely complex and situational and that behaviors observed may be affected by a host of contingent variables within the environment. Mitzel (17, 120) has suggested that these variables may be so commanding that teaching effectiveness can be studied only in a variety of specific situations. Moreover, it is commonly observed that large city school systems develop a climate for learning and teaching which is unique for each city. (19, 8) Therefore, rather than restrict the study to a comparison of performance of the graduates with models taken from research alone, it was decided that the design of this study should concentrate as well on comparisons with criteria of effectiveness empirically determined. This would account for the factor of situation or setting. These empirical criteria will derive from two kinds of comparisons: (1) with the performance on study variables of a comparable group of teachers randomly selected in the same schools where the graduates are located and (2) with the performance on the study variables of a group of experienced teachers in the Chicago School System who have been judged as being superior teachers by their principals.

The major questions, therefore, implied in the main objective of the study, stated as null hypotheses, are the following:

When measured by trained observers using the Ryans Classroom Observation Record and the Flanders Interaction Analysis System it will be found that:

1. there is no significant difference in the teaching behavior and behavior of their pupils of Chicago Consortium graduates of Teacher Corps curricula now teaching in the Chicago public schools and a random selection of teachers with similar teaching experience, and

2. there is no significant difference in the teaching behavior and the behavior of their pupils of Chicago Consortium graduates of Teacher Corps curricula and experienced teachers in the Chicago public schools who have been identified as superior teachers by

their principals.

A secondary, but nonetheless important, objective of this study is to ascertain whether or not the kind of cooperation a school system can reasonably afford to give will be sufficient for an institution of higher education to make a systematic follow-up of the teaching behaviors of its graduates. In the main, the questions to be resolved in this respect are:

1. Does the school system have the resources and the flexibility needed to cooperate in locating the present teaching assignments of graduates and to permit observation of their performances?

2. Can independent observers from outside the system be used to make observations? Or, barring that, is it possible to train school system personnel in the use of the scientifically designed observational techniques so that they may make the observations?

Answers to these two questions are a test of feasibility and will have a decisive influence on the design of the study. At various points in the conduct of the study these questions will weigh heavily in the balance between the practical in a follow-up and the theoretical in designing a study with optimum objectivity. A study with ideal plans for gathering empirical data of a high degree of objectivity which could not be carried out under normal conditions is of little functional value. In the design of this study, therefore, neither the processes of conducting a follow-up of least distractability to normal school routines nor empirical scientific purity in gathering the elements of teaching behavior can be pursued to the exclusion of the other. They are inherently inseparable if the feasibility of a systematic follow-up process is a major consideration.

Review of Literature

Research on the effectiveness of Teacher Corps Interns as teachers has been virtually non-existent. The program is of recent origin and only now are its products in teaching positions in sufficient numbers where their teaching patterns and their effectiveness can be studied. Consequently, this review of literature will be concerned primarily with studies related with respect to design and the location of valuable resources on teaching behaviors.

Related Studies

Studies directly related to this one in content are relatively few, but several have been found that have one or more features in common with respect to design.

Amidon and Giamatteo used a model of teaching effectiveness very similar to that used in this study. Administrators and supervisors were asked to identify superior teachers. When those so identified were compared with 153 other teachers selected at random from the same schools on Flanders system of interaction analysis, it was found that the verbal behavior pattern of the superior teachers was distinguishable from those of average teachers. (7)

Seibel (29), studying the predictability of teachers' classroom behavior, found substantial relationships between certain antecedent variables and classroom behavior of students. His findings suggest that it is possible to predict teacher behavior in the classroom. In a similar vein Medley (25) explored the relationship of teacher-pupil rapport and scores on the Edwards Personal Preference Scale. Findings suggest that successful student teachers are distinguishable from least successful on four needs: intraception, achievement, abasement, and aggression.

Kosier and DeVault (21) contrasted two experimental methods of inducting elementary teachers into teaching with the conventional approach. The groups were contrasted on personality changes and subsequent affect on classroom communication behavior. The empirical evidence suggests that personality structure can be influenced by the instructional approach.

Sandefur (28) used both the Ryans and Flanders techniques in an experimental study of the professional education for secondary teachers. The study was at the pre-service level. Both techniques were able to measure several important differences between the experimental and control groups. Significant differences were found in teaching and pupil behavior, with the experimental group exhibiting the more desirable behaviors on both the Classroom Observation Record and the Interaction Analysis.

A study by Storlie (31) attempted an evaluation of an in-service program through follow-up. Major attention was focused on changes in verbal behavior of teachers after an in-service course. Teachers were observed before and after a course on the use of authority in the classroom. Four hypotheses concerning the relationship of type of course and teacher's pre-training style were developed. They were: (1) teachers who were indirect in their own teaching would show more gain when the instructor of the in-service course used in-direct methods, (2) direct teachers would gain more when exposed to direct treatment, (3) direct teachers would show less gain when experiencing indirect instruction, and (4) indirect teachers should show least change of all groups when they experienced direct instruction in the in-service course. A concluding

hypothesis evolving from the study is that greatest satisfaction in the course will be experienced by teachers who show the most gain in indirect teaching.

Furst and Amidon (16, 167-175) completed a status study on the interaction patterns existing in elementary school classrooms. The study centered on a cross section of classrooms from low and middle socioeconomic areas of the city and suburban schools adjacent to the city. Trends in prevailing teaching styles for all grade levels were identified.

As reported in Amidon and Flanders (6, 86-87), studies of teacher interaction styles with pupil achievement by LaShier, Furst, Soar, and Weber found indirect approaches to teaching to be more conducive to positive factors of pupil achievement.

Resource Studies

National interest in the improvement of elementary teacher education has produced nine comprehensive models or educational specifications for programs of teacher education. (9) These models, stimulated through a request for such by the USOE, are detailed compilations of specific behavioral objectives, materials, treatments, and evaluative suggestions. They should prove invaluable in further study and experimentation in teacher education and may be fruitful in identifying important elements in teaching behavior for objective study.

Comprehensive reviews of studies using the interaction analysis technique are found in Amidon and Flanders (6) and Amidon-Hough (8). Campbell and Barnes (10) have made an analysis of several studies that have used the Flanders technique. These studies tend to support the hypothesis that the indirect/direct ratio scores are significantly related to achievement and attitude development in children in almost every school subject at all elementary grade levels.

CHAPTER 2

METHODS

Instruments Used In The Study

The following observational techniques have been selected for this study because of their proven reliability and extensive use in research on teaching:

1. The Classroom Observation Record

An instrument developed by Ryans (26) as a research instrument in the Teacher Characteristic Study of the American Council on Education, the COR provides for assessment on a seven point scale of 18 teacher behaviors and 4 pupil behaviors. The scale was derived from studies of critical behaviors of teachers. A trained observer can develop high reliability in using the dimensions on the scale. Through factor analysis of observations on elementary teaching behavior, Ryans has identified three major patterns of teaching behavior within the 22 dimensions on the COR. A description of each pattern (X,Y,Z) is given in this study on page 74. A copy of the Classroom Observation Record, showing the twenty-two behavioral dimensions, is available in the appendix.

2. A System of Interaction Analysis

A method of observing and coding the verbal interchange between pupils and teachers developed by Flanders (6) provides a reliable method of capturing quantitative and qualitative elements of teacher verbal behavior in the classroom. The system is based on the assumption that verbal behavior represents an adequate sample of the total behavior of a person (10, 6). As a research tool the system requires a trained observer to gather data. The observer records the appropriate category number for teacher or student verbal behavior as it occurs, at the rate of about one every 3 seconds. About 400 observations are recorded in a 20 minute period of observation. Observations are coded into 10 categories: seven involving teacher talk; two, pupil talk; and one category for silence and/or confusion. A copy of the 10 categories is contained in the appendix. In scoring, teaching behaviors may be classified as indirect or direct. The number of elements of data are expanded by recording the sequence of tallies in a 10 x 10 matrix. Accounting for sequence in the matrix yields 100 basic elements of behavior which, when used in various combinations, greatly enhances interpretation of teaching style.

Selection of Subjects

As a follow-up study of the products of a particular teacher education curriculum, this study did not require a sampling technique to determine the composition of the study

group. It is composed of those individuals who have participated in a Teacher Corps curriculum sponsored by the Chicago Consortium of Colleges and Universities and who are now employed as teachers in the Chicago Public Schools. Included are all of the graduates from the first three Teacher Corps cycles and the first Urban Corps group who are now teaching in Chicago.

In the early stages of planning this project the Consortium administration felt that, based on conservative estimates from continued contact with graduates, it was reasonable to expect that at least 50 graduates from the first three Teacher Corps Cycles would be teaching in the Chicago Schools in 1970-71. Original plans were for the follow-up to occur in that year, however, delay in funding the project made it necessary to postpone the start one year. In the interim major changes occurred in the anticipated composition of the target group. A preliminary survey conducted with the help of the Office of Teacher Personnel in the spring, 1971, revealed about 66 participants from the first three Cycles still holding position numbers in the Chicago Public Schools. When exact school locations were checked in September, 1971 there were 25 found to be teaching in classrooms in Chicago Public Schools. Of the others sketchy reports indicated that a few were employed in other than classroom positions by the Board of Education or were on leave, but most had separated from the School System.

Anticipating that further depletion of the group could take place as arrangements for actual observations were made, it was decided that Urban Corps graduates of 1969 would be used to keep the numbers above 35. Urban Corps Interns are not unlike the Teacher Corps Interns in that they too have experienced the basic Teacher Corps curriculum. A test of mean differences reported in Chapter 5 supports the assumption of no significant differences in the two groups on the study variables. Practical limitations of budget for observation time dictated that the total study group be no larger than 40. Consequently, additional subjects were drawn at random from the available Urban Corps graduates until forty subjects were definitely established for the study.

In November, 1971, final arrangements were completed to visit the classes of 24 of 25 Teacher Corps Interns then teaching in a classroom. One refused to be observed when approached. Of the total of 21 Urban Corps graduates found to be teaching at that time, 16 were selected at random to round out the total number of Consortium trained personnel for the study to forty.

Once the make up and distribution of the study group was established, two comparison groups were selected with the cooperation of the principals of the schools in which the Interns were located. The principals were asked to identify the most outstanding of the superior teachers, under age 50, with 3

or more years of experience to constitute the group of experienced superior teachers. In addition, the principals were asked to select at random one other teacher from all other teachers who was similar to the subject located at their school on matching variables and years of experience. Members of both control groups were matched with the subjects, to the extent possible, on these variables listed in order of importance: school assignment, grade level assignment, sex and race. All three groups were distributed throughout thirty-five schools and proportionally the same among the three grade levels: Primary, 32.5%; Intermediate, 47.5%; Upper, 20%.

Selection of Observers

The objectivity of the study depended in great measure on the qualifications of the observers selected. One effective method considered was to choose independent observers--people not associated with the school system or Consortium--for all observations. This, however, was not encouraged because of the complexities of arranging for non-school system personnel to visit a wide variety of schools. Again, within the realm of the practical, objectivity was to be assured to the greatest extent possible by selecting observers from among supervisory and/or administrative personnel identified by the school system. Care was exercised to insure that those selected had the desired characteristics for observers suggested by Ryans (23, 72) and were knowledgable about the schools. In the course of the funding delay the Intern subjects became more widely spread throughout the city, and with this turn of events it became apparent that another requisite for the observers would be great mobility. With the cooperation and advise of the Area Superintendents four observers who met all qualifications were selected. The following individuals were named observers for the project:

Mr. James J. McCarthy	Social Studies Supervisor, Area A
Mr. Robert A. Nesbitt	Administrative Assistant, Area B
Mr. Dan Simons	Staff Assistant, NYC, Area A
Mr. Herman P. Stepto	Director, Area A Programs, Area A

Training of Observers

On September 14, 1971 the observers began an intensive training program modeled after that described by Ryans (6, 73) and utilizing training materials developed by Amidon and associates (2) (4) (5). Ten two hour meetings were conducted over a five week period. In addition to the meetings, each observer was equipped with an audio cassette tape recorder, a set of training tapes and manuals for Interaction Analysis training Kits I and II, a copy of The Role of the Teacher in the Classroom, and a glossary of definitions for the

Classroom Observation Record. These materials were used for study and practice between meetings.

During the training sessions attention was given to discussions of the essential qualities of good observation, the critical teaching behaviors to be observed, and the essentials for validity of assessment. Once the basic definitions of categories on the Flanders and behavior dimensions on the COR were learned, both proficiency and consensus among the observers was encouraged through a series of practice exercises. Inter-observer agreement was developed by the use of audio and video tapes and, in the latter stages, with live teaching situations. Frequent feedback on their inter-observer agreement were given to the observers during the last four sessions, using estimated reliability as suggested by Amidon (2, 47-48) for the Flanders. Dimensions on the Classroom Observation Record were reviewed after each proficiency session in an effort to reconcile any inter-observer differences on that technique.

Inter-observer reliability was finally checked during the first week in November, 1971 in live teaching sessions at a local school similar to those in which observations of subjects and controls were to occur. In the reliability checks the observers visited each classroom together for about 30 minutes. After a period of acclimation to the classroom and the lesson, the observers on signal began recording a 20 minute segment of interaction analysis. Reliability coefficients were determined, using Scott's pi correlation coefficient suggested by Flanders (8, 161). The inter-observer correlations for the Flanders obtained on a 20 minute test segment of live interaction are shown in Table 1. The average correlation among observers on the Flanders was .86. This compares favorably with the coefficient recommended for research (8, 166).

Table 2 presents the inter-observer agreement on the COR for the four observers averaged over four live classroom sessions. The average correlation is .86, well within the range of correlations considered to show substantial agreement (27, 93).

Observation Procedures

In mid October, 1971 arrangements were begun for observers to visit schools for direct observation of the subjects and controls of the study. Where a teacher corps intern was now located as a teacher, the principal was contacted through the district superintendents office. The principal of each school received an outline of the research project enclosed in a letter from the Area Superintendent's office. The letter encouraged the full cooperation in the project. A copy of the letter and the outline received by the principal are included in the appendix. The letter to District Superintendents from the Area Superintendent

Table 1

Observer Reliabilities on Flanders Interaction Analysis

Observer	1	2	3	4
1		.90	.87	.84
2			.84	.85
3				.84

The above reliability coefficients were calculated by Scott's method using per cent for each category. The average reliability coefficient (using Fisher's r to z transformation) is .86

Table 2

Observer Reliabilities on Classroom Observation Record

Observer	1	2	3	4
1		.93	.82	.86
2			.81	.84
3				.87

The above correlations are average rank order correlations on 4 live sessions. Fisher's r to z transformation was used in averaging. The average coefficient of correlation for this group was .86 (r-z) Correlations were averaged across the 22 categories in each of the four group sessions.

is also included in the appendix. In the materials thus transmitted, the principals were given a concise overview of the project, an idea of the part they would be asked to play, the names of the Interns at their schools, and the names of the observers. They were told also to expect a contact from one of the observers in the near future who would help them work out the details of choosing subjects for the two control groups and arrange an itinerary for making the initial observations.

Thirty-five schools became involved in the project, distributed among the school system Areas as follows: Area A, 13; Area B, 14; Area C, 8. More than one subject was located in five of the thirty-five schools. Three schools had two subjects and two schools had three subjects each.

Once the make-up and distribution of the Graduate Interns was determined, the two comparison groups were established as outlined on page 16. Where necessary to insure that resultant observations are attributed within limits of error of measurement to the training characteristic of the Interns, both comparison groups were matched with the Interns on school assignment and grade level taught in all cases, and on subject matter teaching when observed, sex, and race wherever possible. Years of experience was similar for Interns and control group of randomly selected teachers. All were in their first three years of teaching. In the case of the control group of superior teachers, experience is varied by design--experienced teachers having three or more years of experience.

Matching beyond school assignment and grade level became increasingly difficult because of the limited number of teachers available within a school to serve as controls. To insist on a match on subject matter, race, and sex would have called for an expansion of the number of schools involved. Controls would have had to be found in neighboring schools, chosen at random. Practical limitations in such a move included the complexities of finding similar cooperation in a wider circle of schools and the substantial increase in time consumed by observers in setting up visits and travel from school to school. Observers were spending about an average of one-half hour with the principal of each school in setting up visits. The most serious objection to a widening of the schools, however, involved the loss of match on school assignment for Interns and controls. It was the opinion of the investigators that this match was central to the project and should be maintained. Implicit in such a match is the control of at least two very powerful factors that might influence differences among the three groups: (1) the socio-economic conditions of the school in which Interns and controls were teaching, and (2) the leadership of the principal of the school.

For these compelling reasons, it was decided to retain the direct match on school assignment and, where analysis of variance indicated significant differences on sex and race, to control such variation between comparison groups through the use of an analysis of covariance method.

Observations of all three comparison groups were conducted by the four observers beginning the last week of November and continuing through the first week in February. All subjects and controls were visited two times--each observation being made by a different observer. The four observers formed into two teams of two each, one black and one white observer in each team. Thus, any possible bias caused by differences in race of the observer and the teacher being observed were minimized. In all, the observers conducted two hundred and forty observations. Each observation lasted approximately 30 minutes. Within that time a carefully timed 20 minute segment of interaction behavior was recorded using the Flanders 10 categories. Shortly after leaving the classroom the observer recorded his impressions of the teacher on the 22 dimensions of Ryans Classroom Observation Record. Observers then submitted all records of observations to the investigators as outlined in Chapter 4.

CHAPTER 3

FINDINGS

There are three major parts to the report of results of the study: (1) A statistical profile of the Graduate Interns on major variables for the Classroom Observation Record and the Flanders Interaction Analysis Category system. (2) The relationship of results in this study to trends and norms from research on teaching using the same instruments. (3) A comparison of Graduate Interns with the two control groups.

A Statistical Profile of the Graduate Intern's Teaching Behavior

An important outcome of this study was to provide the Consortium with an objective base of information on important elements of the teaching behavior of its graduates. The first part of the findings is a statistical profile of the salient characteristics of the Graduate Interns. This may be seen in the distribution of their scores on major variables of the Classroom Observation Record and the Flanders Interaction Analysis Categories. Data for all variables on the two instruments will be found in the appendix, along with similar information for the two control groups.

Descriptive statistics are not presented here to settle points of teaching effectiveness; rather, they are intended to supply facts on the performance of Graduate Interns in easy to use form. With these data at hand future curriculum makers may make inferences about training needs and draw hypotheses for further investigation. Neither inferences or hypotheses can proceed without the empirical base these data provide.

Interpretations of variable scores are aided by simple values which are descriptive of the total distribution. In this study quartiles and ranges are used. Together they present a comprehensive picture of the central tendency and dispersion among the Graduate Interns on each of the variables.

A distribution is conveniently divided into quarters by marking off the range and points at Q3, Q2, and Q1. Twenty-five percent of the group will be included in each quarter. Thus, with a total of 40 Graduate Interns in this study, 10 cases are included in each quarter. For each study variable, then, one can quickly ascertain the range of scores characteristic for the bottom 10 cases, the middle 50 percent, or 20 cases, and the top 10 cases.

Since the range and the interquartile range, Q3 - Q1, are readily available indices of dispersion when a distribution is so described, inferences regarding the shape of the distribution, whether skewed, peaked or flat may be drawn. Where the difference

between Q3 and Q2 is greater than the difference between Q2 and Q1, the distribution is positively skewed, indicating the effect of a few extremely high scores. If, on the other hand, the difference between Q2 and Q1 is the largest the distribution is negatively skewed, thus suggesting the presence of spuriously low scores in the array (18, 70-71). Quartile points will not, however, reveal whether a distribution is bi-modal or multi-modal.

Distributions are usually peaked in instances where the range is more than three times the difference between Q3 and Q1. Such distributions show greater homogeneity than normal. Where the range is less than three times the difference between Q3 and Q1 an assumption of heterogeneity is warranted. For the more technical reader, evidence of homogeneity and skewness is given in the indexes of skewness and kurtosis in Table 30 in the appendix.

Comparisons of two or more distributions on their relative variability and central tendency is possible when the distributions are in the same score units. Even though quartiles are not available in related research, central tendencies may be used to facilitate comparisons. Proportions of the group in this study above and below such points in related studies can be observed.

Tables 3 and 4 display the distributions of Graduate Interns on important Classroom Observation Record and Flanders Interaction Analysis Category variables. All scores shown in these tables are composites formed by averaging two observations on each subject.

Table 3 brings the results on each of the Classroom Observation Record variables into sharper focus. For example, in Table 3 the Graduate Intern's performance for the Total Instrument is characterized as follows:

1. The range of scores for the middle fifty percent, or 20 cases, was from 89.5 to 109.5.

2. The distribution is negatively skewed--the difference between Q3 and Q2 is less than the difference between Q2 and Q1.

3. There is an appreciable spread among scores in the lower quarter of the distribution.

4. Scores within the interquartile range are close knit, suggesting more homogeneity among the middle 20 cases.

Similar facts for each of the other variables on the COR may be ascertained in like manner using Table 3. Notably, it will be seen that skewness is negative in Teacher Behavior

Table 3

Distribution of Graduate Interns Scores on the Classroom Observation Record for Teacher Behavior Patterns X, Y, Z, Pupil Behavior, Total Teacher Behavior, and Total Instrument

Quartiles	Teacher Behavior Patterns X	Y	Z	Pupil Behavior	Total Teacher Behavior	Total Instrument
Q_3	26.4	26.2	10.2	20.2	92.5	109.5
Q_2	24.9	23.5	8.6	17.3	86.4	102.8
Q_1	20.8	20.8	8.0	15.2	73.5	89.5
Range	14-29	11-29.5	4.5-13.5	9.5-23	46.5-105	56-127.5

patterns X and Y; that skewness is positive, affected by wider dispersion in the top quarter, on Total Teacher Behavior and Teacher Behavior Pattern Z; and that skewness is negligible on Pupil Behavior.

Table 4 provides a clearer picture of the major teaching behaviors recorded in Flanders Interaction Analysis Categories for the Graduate Interns. For example, the facts in Table 4 describe the characteristic behavior of the group on percent of Teacher Talk as follows:

1. The range of the middle 20 cases was from 49 percent to 67 percent of total interaction.

2. The distribution is almost symmetrical, with only slight negative skewness.

3. Scores within the interquartile range are spread almost as much as they are throughout the total range, suggesting heterogeneity here.

4. The distribution has greater dispersion than normal.

Comparable characteristics may be drawn for the other variables presented in Table 4. Skewness is positive, but negligible, in percent Pupil Talk and Categories 5, 6, 7, 8, and 9. It is slightly negative in Category 4. The largest skewness is seen in Category 10. There the difference between Q3 and Q2 is almost double that between Q2 and Q1, indicating a strong positive skewness. Some of the cases in the upper quarter on Category 10 are substantially spread,while scores in the lower quarter are more closely knit.

Only Categories 5, 6, and 9 in Table 4 show any signs of peakedness in their distributions. It is quite marked in the case of Category 9. Conversely, Categories 8 and 10, percent Teacher Talk and percent Pupil Talk, are marked by greater dispersion than normal. (Note that this is coupled with pronounced positive skewness in Category 10.)

Results related to trends in other studies

Additional insight into the nature of the statistical profiles of the Graduate Interns can be gained by relating these results to findings in other research using the same instruments. Such studies may represent trends and normal expectations and as such serve as a background to highlight features of the statistical profile. A word of caution is in order, however, when contrasting results with other research studies. The indices used as trends or norms must be treated conservatively. They represent results for different subjects under different conditions, and important variation may rest in both of those conditions. Often, only central tendencies are given in studies with no indication of

Table 4

Distribution of Percent Scores for Graduate Interns on Major Variables of the Flanders Interaction Analysis Categories

Variables*	Quartiles Q3	Q2	Q1	Range
Category 2	7.70	6.15	4.45	1.6-11.6
Category 3	1.40	0.75	0.40	0-3.2
Category 4	17.50	15.30	12.00	5.1-21.9
Category 5	36.00	27.50	21.00	10.3-64.1
Category 6	4.17	2.70	1.70	0.1-16.3
Category 7	4.45	2.83	0.95	0.4-8.0
Category 8	30.50	20.00	12,50	4.1-47.2
Category 9	8.50	5.21	2.70	0.2-27.5
Category 10	19.50	10.50	5.21	2.6-35.3
Total Teacher Talk	67.00	59.50	49.00	36.4-79.7
Total Pupil Talk	36.50	27.00	19.00	11.8-56.8

*Category 1 is so rare these statistics would be meaningless.

variation. For these reasons, the comparisons to follow are treated only as coarse representations of population statistics and will serve simply as a general ground to expose salient features of the figure--the statistical profile of the Graduate Interns in this study. It was with this in mind that a decision was made, in part, early in the development of this study to provide for empirical criteria derived from comparable data on both the COR and the FIAC for two control groups. It is in those comparisons, where control of concomitant variables does exist, that the sharper more analytical contrasts will be made.

An appropriate starting place for normative data on the Classroom Observation Record would appear to be Ryans (26) report of the Teacher Characteristics Study. Through factor analysis Ryans discovered three basic teacher patterns in the clustering of various dimensions on the COR. These three patterns, named X, Y, and Z, represent major dimensions of importance in

interpersonal relations. The components of each pattern as finally determined by Ryans (26, 108) are listed in Table 5.

Table 5

Dimensions for Teacher Behavior Patterns X, Y, and Z on the Classroom Observation Record

Pattern	COR Dimension
X	6. Autocratic-democratic
	7. Aloof-responsive
	8. Restricted-understanding
	9. Harsh-kindly
	20. Pessimistic-optimistic
Y	2. Obstructive-responsible
	14. Evading-responsible
	15. Erratic-steady
	16. Excitable-poised
	18. Disorganized-original
Z	10. Dull-stimulating
	11. Stereotyped-original

On a bipolar scale from 1 to 7, the adverse or negative end of each continuum for the dimensions is represented in varying degrees by scores from 1 to 3; the positive behaviors by scores from 5 to 7. A score of 4 is a median choice.

Norms for teacher behavior patterns X, Y, and Z may be inferred from results obtained by eighteen observers reported by Ryans (26, 123). Since Ryans did not give a composite for the eighteen observers, the investigators of this study made one by computing weighted means and standard deviations from the means, standard deviations, and number of cases given for each observer. The results are included in Table 6. With these data serving as normative background, it is possible to further refine the scores of Graduate Interns. Table 6 presents the means and standard deviations of the Graduate Interns and the composite means and standard deviations of the raw assessments of Ryan's 18 observers. The means of the two studies are very similar for all teaching patterns--differing only by 1.07 points on pattern X, .67 points on pattern Y, and .93 points on pattern Z.

Although desirable, a "t" test of the significance of the difference between means would be questionable in this instance because of the large disparity in the number of cases (N= 2469 in Ryan's study) in the two studies (18, 185) and the

Table 6

Comparison of Graduate Interns and Ryans Observer's Assessments for Teaching Patterns X, Y, and Z

Teaching Pattern	Ryan's Observers Mean	SD	Graduate Interns Mean	SD
X	22.58	3.99	23.65	3.81
Y	22.37	3.91	23.04	3.92
Z	7.78	1.69	8.71	1.79

finding of skewness for these variables in this study.

The comparison would appear to warrant the observation that the description of the Graduate Interns emerging here on the three teacher behavior patterns is much like that for the teachers observed by Ryan's observers. The Interns are slightly above average on all three patterns. (see page 10 for a description of behaviors in each pattern.)

In a more recent study, Sandefur (28) used the COR in an experimental study of prospective secondary teachers with somewhat different results. Information on teacher behavior patterns X, Y, and Z is not available but findings for pupil behavior, total teacher behavior, and total for the instrument are. All three variables for the control group of the Sandefur study are consistently higher than comparable statistics in the present study. Table 7 is a comparison of the means from the Sandefur study with those of the Graduate Interns. Standard deviations were not available. The Sandefur study means of 19.83 for pupil behavior, 93.15 for total teacher behavior, and 112.97 for total instrument are substantially higher than those in this study. In fact, these central tendencies exceed the performance of over 75 percent of the Graduate Interns on total teacher behavior and total for the instrument, and nearly that percent on pupil behavior. Results for the experimental group in the Sandefur study were even higher.

Before concluding, however, that the scores for the Graduate Interns are spuriously low, it is well to reconsider the evidence reported in Table 6. Numerous things may cause differences like those shown in Table 7. It may be due largely to the difference in populations being observed--pre-service vs. in-service teachers. It may be a particular set on the part of observers, or the differences in school settings--inner city vs. rural. Whatever the causes, it serves to remind us of the subjectivity of rating scales of the COR type.

Table 7

Comparison of Graduate Interns and Results in Sandefur Study on Pupil Behavior, Total Teacher Behavior, and Total for the Instrument

Behaviors	Sandefur Study Mean	SD*	Graduate Interns Mean	SD
Pupil Behavior	19.83	--	17.44	3.25
Total Teacher Behavior	93.15	--	82.95	13.20
Total Instrument	112.97	--	100.40	15.76

*Not available

Taken together, the Ryans and Sandefur studies provide a usable background of anticipated results on such a scale. Beyond that, this study will rely on the data from the two control groups to be reported later in this report.

The Flanders Interaction Analysis Category system has been used extensively in recent research studies, and normal limits for the major variables on this instrument are easily ascertained. In fact, Flanders recently compiled some "Normative Expectations" on the system (13, 107).

Three basic studies: Flanders (13, 107), Furst and Amidon (8, 167-169), and Amidon and Flanders (1, 45-50) have been consulted in establishing normative expectations for each of the major variables on the FIAC for use in this study. Percent bands have been created from a cross-section of the results of the above cited studies. These bands are drawn from results obtained across the first eight grades in elementary school, thus roughly approximating the grade levels represented in the data on the Graduate Interns. The bands may appear unusually large in some instances, nevertheless, several important characteristics for Graduate Interns can be highlighted by comparing their distribution statistics with the bands.

Relationships of Graduate Interns median scores and interquartile range on the major variables of the statistical profile to the normative percent bands are displayed in Table 8. Of initial interest are the instances in which the median for Graduate Interns lies outside the normative percent band. This occurs in the case of Categories 2, 3, 6, 9, and 10. Only in Category 2 does the Graduate Intern median lie above the percent band.

Table 8

Relationship of Graduate Intern Scores to Normative Expectations on Major Variables of the Flanders Interaction Analysis Categories

Variable	Normative Percent Band	Graduate Intern Median (Q2)	Interquartile Range
Percent Teacher Talk	70 - 45	59.5	67 - 49
Percent Pupil Talk	39 - 19	27.0	36.5 - 19.0
Percent Category 1	0.5*	0.1*	-- --
Category 2	6 - 2	6.15	7.70 - 4.45
Category 3	9 - 2	0.75	1.40 - 0.40
Category 4	18 - 8	15.3	17.50 - 12.0
Category 5	50 - 9	27.5	36.00 - 21.0
Category 6	8 - 4	2.7	4.17 - 1.7
Category 7	5 - 1	2.83	4.45 - 0.95
Category 8	26 - 13**	20.5	30.50 - 12.5
Category 9	13 - 6**	5.21	8.50 - 2.7
Category 10	25 - 11	10.5	19.50 - 5.21

* the percent is too small in this category to develop a band.
** estimated from a pupil initiative ratio and percent pupil talk in studies cited by Flanders (13, 107).

In categories 3, 6, 9, and 10 it is below the band. There is in excess of a fifty percent overlap in the normative percent band and the interquartile range for Graduate Interns for categories 2, 4, 6, 7, 8, 9, 10, percent Teacher Talk, and percent Pupil Talk. The interquartile range for Category 3 does not even encompass the lowest percent cited in other research, suggesting that this is something characteristically unique about the Graduate Interns. Accepting ideas of students, at least in any verbal way, is rare among the Graduate Interns--a point we shall wish to return to in the comparisons with the two control groups of the study.

A more detailed analysis of Graduate Intern's performances on the FIAC is available in a 10 row by 10 column table or matrix. The matrix expands the 10 categories of information recorded by observers to 100 elements of behavior by incorporating the sequence of events. Table 9 is a composite matrix for two pooled observations for each Graduate Intern. Numbers are tabulated in pairs, each number being used twice: once as the second number of a pair and then as the first number of the next pair. In plotting paired numbers into cells, the first number indicates the row in the matrix, the second the column. Percent of total tallies is shown for each cell in Table 9. Also given are the percents for the sums for each category. (The appendix has comparable matrices for the control groups.)

Many facets of the Graduate Intern's behavior is discernible in the composite matrix. In Table 9 the heaviest concentration of verbal behavior is in cell 5-5 (21.5 percent). This is followed by cell 8-8 (9.6 percent) and cell 4-8 (8.9 percent). Several revealing ratios are extracted from a matrix by combining the totals for different columns and cells. These ratios are defined in Table 10, and may be used in making inferences about teaching styles.

Table 11 gives the obtained ratios for the Graduate Interns. A study by Furst and Amidon (8, 171) suggests that teachers tend to be more indirect in the early grades and more direct in the 5th and 6th grades. The ratios in Table 11 describe a direct teaching style with a heavy emphasis on presentation of content prevailing among Graduate Interns. According to standards suggested by Flanders (13, 107), the TQR and PIR in Table 11 are nearly normal.

Interestingly, the revised i/d ratio indicates that direct teacher statements are used with about the same frequency as indirect statements in the control or motivation of pupils. Comparison of the revised i/d ratio and the I/D Ratio indicate that although direct in their basic approach to teaching, the Interns resort to indirect methods in matters of control or motivation of pupils as often as they may use direct means.

Table 9

Composite FIA Matrix for Graduate Interns

	1	2	3	4	5	6	7	8	9	10	
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2	0.0	0.1	0.0	2.2	2.7	0.3	0.1	0.2	0.2	0.4	
3	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.1	0.0	
4	0.0	0.0	0.0	2.1	0.5	0.3	0.3	8.9	1.5	1.0	
5	0.0	0.1	0.0	4.2	21.5	0.7	0.3	0.5	1.1	1.1	
6	0.0	0.0	0.0	0.3	0.4	1.0	0.1	0.9	0.1	0.7	
7	0.0	0.0	0.0	0.7	0.7	0.2	0.5	0.4	0.2	0.3	
8	0.0	5.5	0.1	2.8	1.1	0.5	1.0	9.6	0.2	0.4	
9	0.0	0.4	0.8	0.8	1.1	0.1	0.4	0.1	2.4	0.4	
10	0.0	0.2	0.0	1.4	1.6	0.5	0.3	0.8	0.9	8.9	Matrix Total
TOTAL	18	2210	340	5166	10459	1232	1082	7518	2286	4678	34,989
%	0.1	6.3	1.0	14.8	29.9	3.5	3.1	21.5	6.5	13.4	

Teacher Talk	20,507
Student Talk	9,804
S/T Ratio	0.478
% Student Talk	28.020
% Teacher Talk	58.610
I/D Ratio	0.307
Rev. I/D Ratio	0.528

Table 10

Definitions for Interaction Ratios Used in This Study

Ratio	Definition
I/D Ratio	The ratio of indirect to direct teacher statements. Total tallies for columns 1,2,3, and 4 are divided by the total for columns 1, 2, 3, and 4 plus the totals for columns 5, 6, and 7. Ratios range from 0 to 1.0. 0 to .5 is direct behavior; .5 to 1.0 indirect.
Revised i/d Ratio	Indicates the teacher's response ratio. It is an index of the type of motivation and control encouraged by the teacher. Ratios range from 0 to 1.0. Those approaching 0 are direct; those approaching 1. are indirect. The ratio is found by dividing the total for columns 1, 2, and 3 by the totals for columns 1, 2, and 3 plus 6 and 7.
S/T Ratio	The ratio of the percent of pupil talk to the percent of teacher talk.
CCR	The content cross ratio. It indicates the emphasis on content in a lesson. It is computed by determining the percent of all tallies in the columns and rows of categories 4 and 5.
TQR	The teacher question ratio. It is an index of the teacher's use of questions in guiding the content oriented parts of a lesson. It is found by dividing the sum of category 4 by the sum of categories 4 and 5.
PIR	The pupil initiation ratio reveals the proportion of pupil initiative statements to pupil talk. It is calculated by dividing the percent in category 9 row and column by the sum of percent of all pupil talk in rows and columns 8 and 9.

Table 11

Interaction Ratios from the Composite Matrix of Graduate Intern's Performance on the FIAC

Index	Ratio
I/D Ratio	.31
Revised i/d Ratio	.53
S/T Ratio	.48
CCR	.61
TQR	.33
PIR	.22

Figure 1 depicts prominent areas of the matrix which may be used for further in-depth study of interaction style. The areas in Figure 1 are defined as follows:

Area A. Extended indirect influence. It reveals the emphasis by the teacher on use of student ideas, extending praise or acceptance and affective clarification of student feeling.

Area B. Extended direct influence. Shows heavy emphasis on criticism, lengthy direction, and appeal to authority by the teacher. Frequently indicates problems of discipline.

Area C. Student talk. Indicates the type of teacher statements that encourage students to talk.

Area D. Indirect teacher response to student talk.

Area E. Direct teacher response to student talk.

Area F. Sustained student response.

Talbe 12 gives the percent of the total matrix in each of the areas designated in Figure 1.

Of the 7.4% of the total matrix occurring in categories 1, 2 and 3 only one percent is found in Area A. Extended indirect teaching is virtually non-existent. On the other hand, extended direct teaching, Area B, is twenty-seven percent of the 6.6% of the total matrix in Categories 6 and 7. Where extension does

Category

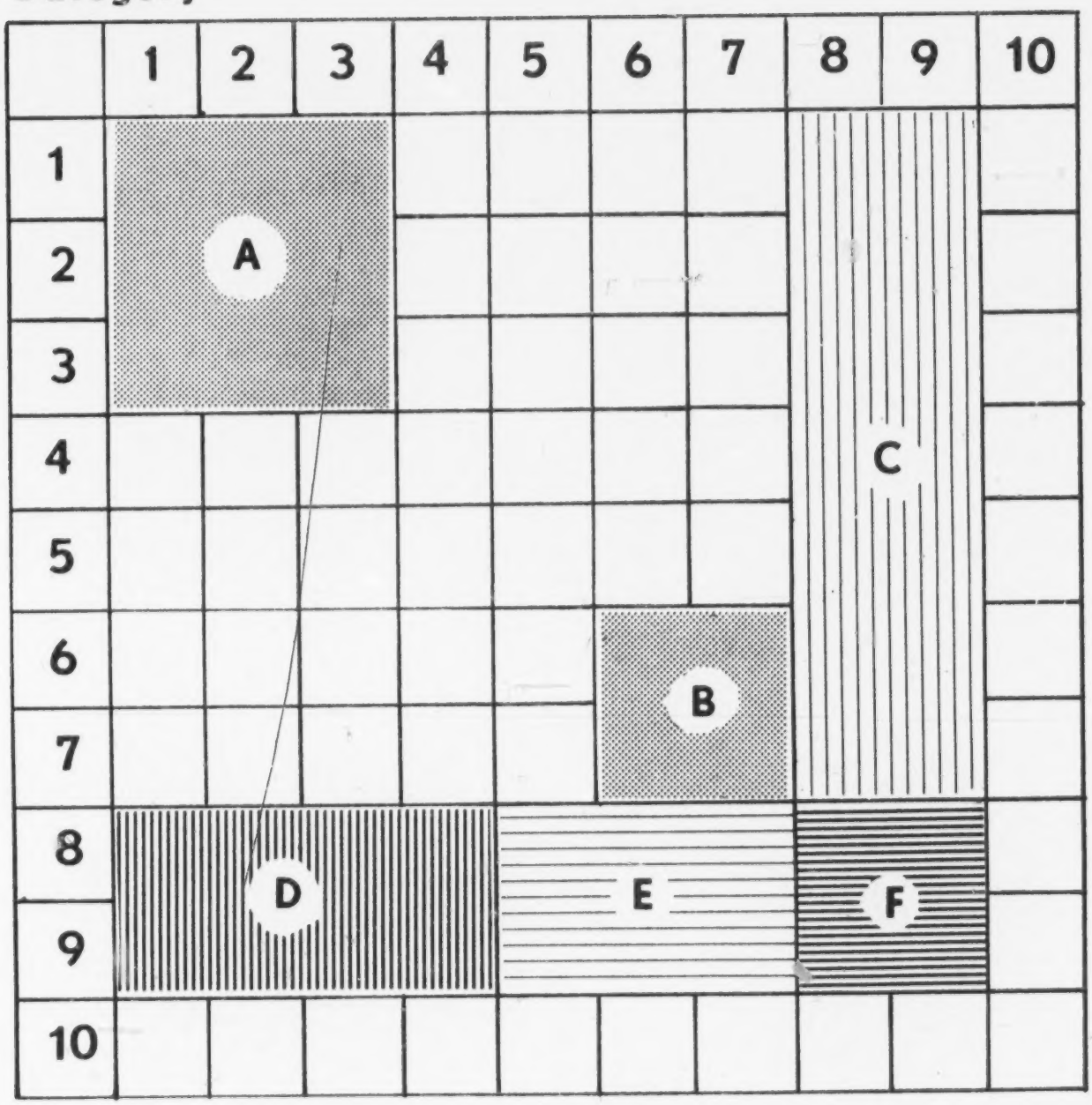

Figure 1

Prominent Areas of Verbal Interaction in
a FIAC Matrix

Table 12

Percent of Total Matrix in Prominent Areas of Matrix for Graduate Interns

Area*	A	B	C	D	E	F
Percent	00.1	01.8	14.1	10.4	04.2	12.3

*Areas are described in Figure 1.

occur, it follows the tendency already seen in the I/D Ratio of .31 to select the more direct means. Most 6 and 7 category tallies were in conjunction with questions, lecture, or after student response. Nearly 32 percent of the column 7 record is devoted to criticism of a student's response (see cell 8-7 in Table 9).

Area C, Figure 1,encompasses all student responses that follow a teacher statement and account for 14.1 percent of the matrix total. The greatest proportion of these responses, 63 percent of those in columns 8 and 9, row 1 through 7, follow questions asked by the teacher.

Area D and E represent the typical way in which teachers respond to pupil talk. 6.8 percent of the matrix total is in Area D; 2 percent in Area E. The Graduate Interns concentrate more on indirect praise statements when responding to pupils. Sixty-two percent of all Area D and E responses are in cell 8-2.

Area F, in Figure 1, is an area of sustained pupil talk. It is 12.3 percent of the matrix total; 44 percent of the total for categories 8 and 9. Steady state cell 8-8 accounts for the major portion of responses in this area--nearly 80 percent.

To summarize the profile of Graduate Interns, a modification of Amidons (3) technique for pattern analysis was used to graphically highlight the major teaching style typical of the Graduate Interns. Figure 2 depicts the major pattern emerging for the Interns on the Flanders Interaction Analysis Categories. The pattern starts with the transitional cell that occurs most frequently in the matrix. In this case, it is the 4-8 cell with 8.9% of the matrix total. Next, a move is charted by finding the highest frequency in the row designated by the second number (8) of the cell originating the pattern. An arrow extends between the two cells to indicate the first major sequential relationship. Sequences most likely to follow are found in like manner until rejoining the starting cell, thus enclosing a section of the matrix. Steady state cells showing behavior lasting more than 3 seconds are designated as extensions or modifications to the major pattern.

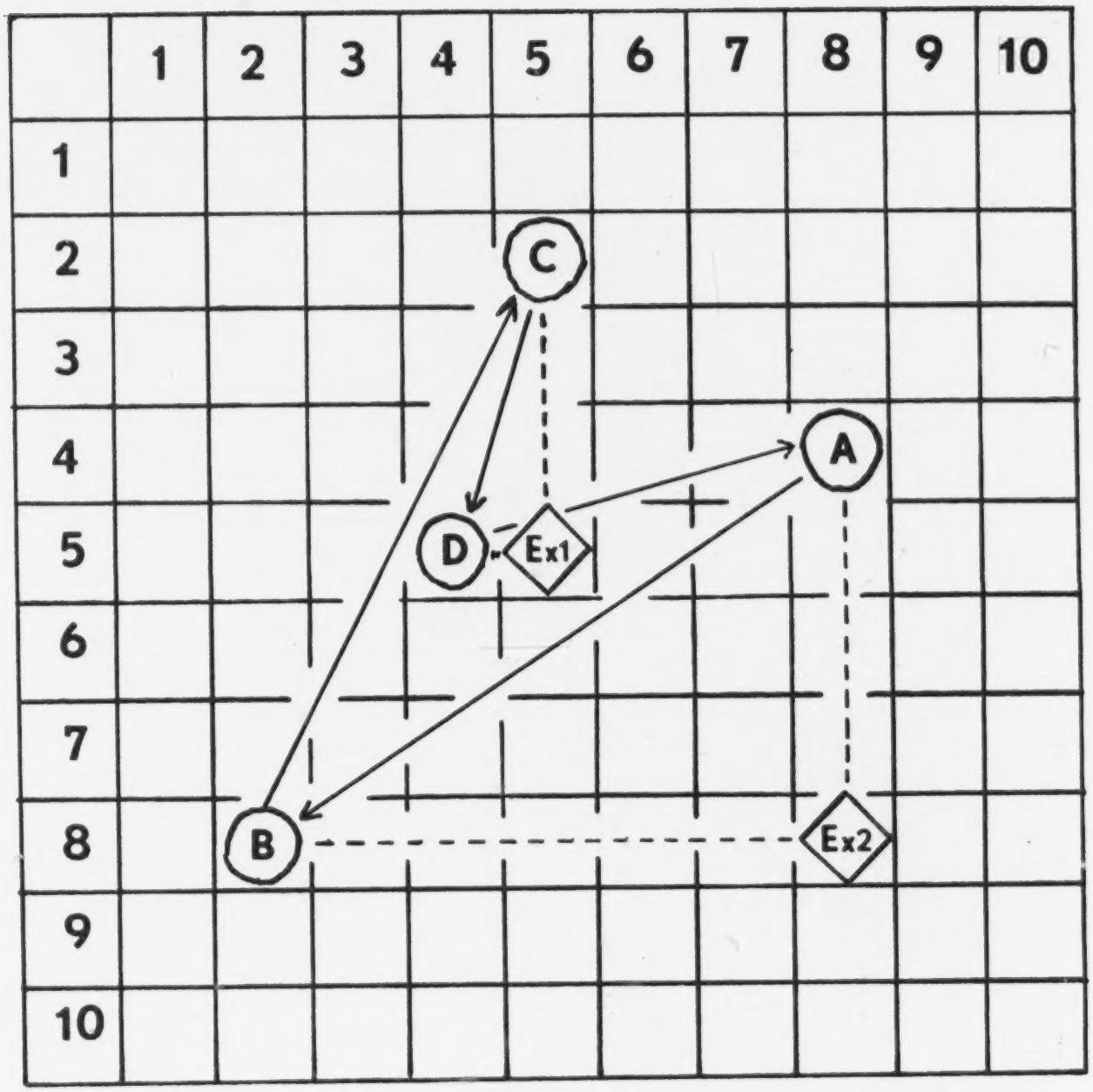

Figure 2

Major Teaching Pattern of
Graduate Interns

The pattern revealed in Figure 2 is a four move pattern--a 4-8-2-4-8, with steady state cell extensions at 5-5 and 8-8. It is not an uncommon teaching pattern found in conditioned response learning situations in elementary classrooms. The very base is the 4-8-2 pattern: Teacher asks a question for which there is a definite, predictable answer. When the pupil gives that answer, the teacher rewards him with verbal praise. (The amount of praise or encouragement may be much more extensive than shown in the matrix. There is no accounting for non-verbal forms in the FIAC.) Though popular, this pattern has limited educational value. It is marked by an absence of creative inquiry among the pupils, and centers most thinking in the teacher. Mastery of specified subject matter or content becomes the central concern in lessons in which this pattern prevails. This trend is somewhat surprising in view of the fact that over 83 percent of the lessons observed were social studies and language arts where discussion to stimulate creative thinking would be expected. Instead, the obvious emphasis is on content and reinforcement or reward for correctness in repeating that content. Of course, it is well to keep in mind that individual variations can and do exist in the group. However, the extraordinarily low percent of category 3 response precludes the occurrence of creative inquiry patterns in all but a few rare cases. Future analysis of individuals who do vary from the group norms may be productive in finding new training approaches that will encourage the type of interaction that stimulates creative thought.

Comparison of Graduate Interns with Control Groups

A thorough comparison of the three groups for which data were collected in this study has been made to account for any possible differences among them. Table 13 summarizes the analysis of variance on major variables for the Classroom Observation Record and Table 14 the Flanders Interaction Analysis Categories. (Table 23, in the appendix, gives analysis of variance for all variables.)

The most striking impression of the results shown in Table 14 is the sameness of the three groups on the FIAC. Accepting the .05 level as a minimum, analysis of variance revealed no statistically significant differences between the three groups on the variables of the FIAC. Such findings are contrary to what might be expected from evidence in other studies.

In their study of the verbal behavior of superior teachers, Amidon and Giamatteo identified several important differences between superior and average teachers on the FIAC (7, 283-285). Superior Teachers in their study differed from the average teacher in many important ways. Major differences typical of the superior group are listed in Table 15.

Table 13 Summary of Analysis of Variance on the COR.

Variable	Graduate Interns		Control 1(Superior)		Control 2(Random)		F
	Mean	SD	Mean	SD	Mean	SD	
Teacher Behavior Pattern X	23.65	3.81	24.84	3.34	22.23	3.05	5.25**
Teacher Behavior Pattern Y	23.04	3.92	25.90	3.06	22.20	2.98	13.13***
Teacher Behavior Pattern Z	8.71	1.79	9.53	1.32	8.45	1.30	5.54**
Total Pupil Behavior	17.438	3.25	19.113	2.82	16.675	2.51	7.32**
Total Teacher Behavior	82.950	13.20	90.175	10.59	79.938	9.72	8.47***
Total COR	100.400	15.76	109.288	12.81	96.613	11.75	8.89***

*p=.05; **p=.01; ***p=.001

Table 14 Summary of Analysis of Variance for Major Variables on the FIAC.

Variable	Graduate Interns		Control 1(Superior)		Control 2(Random)		F
	Mean	SD	Mean	SD	Mean	SD	
Percent Teacher Talk	58.650	10.94	56.823	13.24	59.101	10.14	0.83
Percent Pupil Talk	27.945	10.94	29.102	13.15	25.905	8.71	0.83
Percent, Category 2	6.310	2.45	5.916	2.88	6.300	3.01	0.25
Category 3	.980	0.79	.753	0.96	.753	0.74	0.96
Category 4	14.734	4.50	14.956	4.98	15.342	4.53	0.17
Category 5	29.941	12.43	28.498	10.12	30.093	11.00	0.25
Category 6	3.564	3.27	3.429	2.57	3.746	3.13	0.11
Category 7	3.070	2.13	2.390	1.95	2.856	2.10	1.11
Category 8	21.522	11.05	22.364	11.54	20.852	8.76	0.20
Category 9	6.423	5.61	6.739	11.04	5.058	5.07	0.53
Category 10	13.405	8.86	14.872	9.49	14.989	9.91	0.34

Table 15 Characteristic Verbal Behavior of Superior Teachers.

	Verbal Behavior	Cell/Category Involved
1.	gave more praise after pupil initiated ideas.	9-2
2.	accepted or used the ideas of pupils twice as much-- more than 3½ times as much in response to pupil initiated ideas.	3 9-3
3.	asked twice as many broad questions that demanded pupil initiated responses.	4-4 4-9
4.	used continuous lecture less.	5-5
5.	gave directions about half as much as the average teacher.	6
6.	used criticism half as much to control pupil noise.	10-7
7.	used criticism after directions half as much.	6-7
8.	encouraged twice as many pupil-initiated statements.	9
9.	talked only about 40 percent of the time.	sum of 1 to 7

In other studies Flanders (7, 285) found that teachers of high achieving pupils tended to exhibit many of these verbal behaviors. They accepted pupil ideas more, criticize less, and encouraged more pupil initiated responses.

Taken in isolation, the absence of any of the above differences between the superior designated teachers and Graduate Interns may mean very little. However, the absence of any significant differences collectively for all major variables must command major attention. Whether or not the absence of marked difference between the groups in this study on these sensitive factors of success is attributable to the locale of this study--in inner city schools--remains a question to be explored. We can only raise the question here; it will take a specially designed study to resolve it.

Nonetheless, the absence of differences on the FIAC does answer in part the two hypotheses of this study. In so far as the FIAC variables are concerned, hypothesis 1 has been confirmed:

there is no significant difference in the verbal teaching

behavior of the Graduate Interns and a random selection of teachers with similar experience.

Hypothesis 2, likewise, has been confirmed:

there is no significant difference in the verbal teaching behavior of Graduate Interns and experienced teachers in the Chicago Public Schools who have been identified as superior by their principals.

These data on the FIAC suggest then that what has been said previously about the major pattern of verbal interaction in the classrooms of the Graduate Interns holds true as well for the two control groups. Analysis of the composite matrices of the two control groups in Tables 24 and 25 in the appendix shows very little variation at all from the four move major pattern described for Graduate Interns in Figure 2. The 4-8-2-4-8, with steady state extensions into cells 5-5 and 8-8, remains the prevailing mood in the classrooms of the controls. Whatever the underlying forces are that prompts this pattern in Graduate Interns, they must be at work also in the case of the controls.

One might speculate that there are factors within the locale of the study which persuade teachers to follow a preferred pattern or style of teaching, and that this preference will take place regardless of the educational background or uniqueness of professional training. The match among subjects and controls on school assignment and grade level seems to have introduced an overriding affect that precludes other sources of variation. Is it influence of the principal, the socio-economic conditions of the community in which the schools are located, or other school oriented factors? This study alone will not yield answers to these questions, yet it has raised interesting points for future inquiry.

The second most outstanding impression is the number of variables on the Classroom Observation Record in Table 13 for which significant differences between the groups have been found. Significance at the .001 level was found in each of the major variables: Total for the Instrument, Total Teacher Behavior, and Teacher Behavior pattern Y. Significance at the .01 level was found in Teacher Behavior patterns X and Z and Pupil Behavior. Thus, all major portions of the COR showed a decided difference in the three groups. For 26 of the 28 variables, probabilities at or above the .05 level were obtained. Only dimensions 4 and 5 did not show any significant difference. Rejection of the two hypotheses of the study are quite clearly warranted on all major variables of the COR:

With regard to hypothesis 1, there is a significant difference between the Graduate Interns and a random

selection of teachers with similar experience.

With regard to hypotheses 2, there is a significant difference between the Graduate Interns and experienced teachers in the Chicago Public Schools who have been identified as superior by their principals.

It must be recalled, however, that rejection of the hypotheses rejects only one possible cause of variance--chance fluctuation due to random selection. Whether the differences observed are real, due to factors inherent in the subjects training status, or to other uncontrolled factors in the study is not shown by analysis of variance. Matching has accounted for two major sources of variation in the groups, and analysis of covariance for sex and race revealed that, although significantly different factors for the groups, this source of variance was not a major source of the differences observed. Although design of the study has accounted for some of the major sources of variation, it is well to consider the possibilities of other uncontrolled variables accounting for the differences. For example, the differences may reside in the setting in which the study was made, or in the observer's approach to the situation, or in the subjectivity of the instrument. This study cannot provide definitive information relative to those possibilities, therefore, we remind the reader to generalize cautiously about the magnititude of the difference in COR dimensions between Graduate Interns and controls. The findings are persuasive and warrant serious consideration as representing real differences between the groups. Consistently, in all major variables of the COR in Table 5 the order of magnitude of means in Table 13 is as follows: (1) Control 1, superior teachers; (2) Graduate Interns; (3) Control 2, randomly selected teachers.

With experience and recognition as a superior teacher there may in fact be an increase in the behaviors in patterns X, Y, and Z and Pupil Behavior. With particular reference to Teacher Behavior pattern Y, there is a reasonable assumption that superior teachers in Chicago Public Schools are more responsible, businesslike, and systematic than the average teacher. Comparison of the Graduate Interns and the randomly selected teachers suggest that type of training program also related to higher ratings on the COR and that there may be components of the Teacher Corps program which are acting to make Interns more like the superior teachers.

CHAPTER 4

STATISTICAL ANALYSIS OF THE DATA

Form of the Original Data

As the four observers visited the schools to gather data for the study they recorded it on data sheets furnished for this purpose. The sheets for the Classroom Observation Record and the Flanders Interaction Analysis had spaces for recording:

a. the name of the graduate who was placed in that school,
b. the grade level taught,
c. the subject taught,
d. the sex and race of the teacher observed, and
e. whether the data was for the first or the second observation.

The names of the matched controls were not indicated on the forms to protect their privacy. The study directors were not provided this information as the original proposal stated.

As the data were turned in by the observers the first and second observations were assembled for each data cell. Each "data cell" included the information for both observations on the graduate and the two controls drawn from the same school. Thus there were 40 complete "data cells" each of which was assigned an arbitrary code number to facilitate identification during the statistical analysis.

Transfer to Machine Format

In order to analyze this mass of raw data it had to be reduced to machine format since the great bulk of data analysis was performed by computer programs written by one of the study directors for the IBM 360/50 computer at the Cooperative Computer Center of the Board of Governors of State Colleges and Universities. Since this computer is physically located at Chicago State University, it was the logical machine to use.

The first and second observations on the Classroom Observation Record were punched into IBM cards. These two cards were averaged and summed to provide for the total, pupil behavior, teacher behavior, X, Y, and Z type scores. The computer program provided these scores punched into IBM cards along with the code numbers for identification. This process is quite simple but the use of the computer guards against errors in addition. The analysis of the Flanders Interaction Analysis tally sheets, however, is not so simple.

Before the Flanders Interaction Analysis can be interpreted, a matrix must be constructed from the tallies. First the tallies were punched on cards (10 punched as 0). Thus 70 tallies could be punched on a single card with room left for identification.

All keypunching was done by one of the study directors who visually verified the cards. This was a time-consuming process, but the tedious process of hand tallying 240 matrices containing, in all, over 105,000 tallies was not only fraught with the possibility of many tally errors, but was a prospect that we could not face with equanimity.

A special computer program was written which read the cards containing the punched number strings and which built the matrix in the computer. Once the matrix was built, the necessary data (e.g. student/teacher ratio, teacher talk percent, direct/indirect ratio, etc.) was accumulated and punched on output cards. An image of the percentage matrix was also produced by the computer on the printer. This program had the capacity of combining any number of observations into a single matrix. All of the matrices shown in this report were prepared in this way so that we can be sure that no errors were made in the actual matrix analysis. This program is written in USA FORTRAN IV and will run on virtually any digital computer. It is available from the study directors on request. The three card output also contained the appropriate identification information. The "data bank" consisting of 5 cards per teacher (600 cards in all) was subjected to a hand punch operation to add race and sex information prior to the statistical analysis. This is explained more fully below.

Data Analysis

The steps in the data analysis were as follows:

1. The means, standard deviations, ranges, measures of skewness and kurtosis, and the correlations of each variable with sex and race were obtained by use of a standard computer program previously written by one of the study directors and widely used at the university.

2. A simple analysis of variance across the three groups was performed by another previously written computer program.

3. Variables of special interest were tallied into frequency distributions by hand to obtain quartiles and (in some cases) T scores. Appropriate computer programs for these tasks were not available and the time to write and test them is considerably greater than the time taken to do the hand operation here.

Normally, this would have concluded the statistical treatment of the data. The results of the steps reported above are arranged in the Appendix of this report. Two problems, however, caused us to undertake further data analysis.

The original plan for this study involved our matching the two groups used as controls with the graduates on both race and sex. An exact match on these variables, however, was not always

possible. To the extent that it was not we wished to investigate whether this lack of matching could have a contaminating effect on the study outcomes. The fact that the groups differ in race and sex is indicated by the F ratios of 6.94 for sex (p .01) and 4.46 for race (p .05).

In order to determine whether covariance adjustments for sex and race were necessary the within groups coefficients of correlation between the study variables and sex and race were determined. These are presented in the appendix in tables 27 and 28. As we see the correlations are low and only a few are significant for a few variables. However, slightly more significant correlations were obtained than one would expect by chance. Therefore, those variables that had significant sex correlations were submitted to another analysis of variance with covariance adjustment for sex. The same procedure was followed for race. Again, a special computer program to accomplish this result was written by one of the study directors.

It is clear that the presence of a significant coefficient of correlation is not, of itself justification for the use of analysis of covariance. The use of this statistical control is based upon our inability to control the variables experimentally as we originally planned to do. However, any variable that correlates near zero with the dependent variables in a study does not have to be controlled either statistically or experimentally. (23, 420-422) The correlations here merely tell us which of our dependent variables may have been influenced by our lack of matching to either show significant differences where none exist or to show no differences where they may exist. The results of the analysis of covariance appears in Table 29 in the Appendix and predicably does not lead us to alter our study conclusions.

As has been previously pointed out, the experimental group (Graduate Interns) contained people who were sponsored through the Consortium program by both the Teacher Corps and the Urban Corps. Because of the essential similarity of the training programs these groups have been considered identical for the purposes of this study.

As a further check to make sure that there were no statistical differences in these two groups, t tests were made between these groups. As can be seen from Table 26 there is no real difference between them. Only one t was significant at the .05 level and one at the .01 level. This is in accord with the chance expectation considering that the groups are compared on 56 different variables.

CHAPTER 5

IMPLICATIONS AND RECOMMENDATIONS

This study was conceived out of a growing need for product evaluation in the improvement of teacher education curricula. Specifically, it will provide a diagnostic feedback for the Chicago Consortium on the performance of graduates of its Teacher Corps curriculum that will materially test the efficacy of approaches used to prepare graduates for teaching in Chicago schools.

The major undertakings of this study were realized. It has provided for:

(1) the identification of specific teacher behaviors which have some relevance to effective teaching.

(2) the description of Graduate Intern's characteristic approach to teaching in the Chicago Public Schools.

(3) the comparison of the specific teaching behaviors of Graduate Interns with those of two control groups and with normative expectations from research trends.

(4) the testing of the feasibility of conducting a follow-up of a group of graduates that stresses systematic objective assessment and is conducted under normal operating conditions in the schools.

Inferences about the effectiveness of the Graduate Interns are facilitated by the statistical profile on their teaching behaviors as measured by the Classroom Observation Record and the Flanders Interaction Analysis Categories, presented in Chapter 3. Interpretation of the profile is enhanced by the comparisons also provided in Chapter 3. The profile takes on greater depth of meaning through the contrast of Graduate Interns performance with that of the two control groups and the normative expectations from related research. Results of these comparisons imply the following:

1. There is one major finding which stands out above all others. It is the remarkable similarity between the Graduate Interns and the two control groups on the FIAC. This is in fact a major discovery, fraught with important implications both for training institutions and the school system. What it means must be carefully studied by makers of teacher education curricula and supervisors of in-service training for teachers. No one can say uniquivocally on the bases of these data whether this is undesirable or not. Consideration of other factors must be made before value judgments are exercised.

2. Although Graduate Interns and controls displayed no significant differences on the FIAC, there are several exceptions to normative expectations taken from research trends. The superior teacher group, in particular, did not exhibit any of the differentiating behaviors that are characteristic of other superior groups on the FIAC. Nor did the performances of all three groups conform to standards of excellence suggested in the research trends on the FIAC.

3. Marked differences were found on the Classroom Observation Record assessments, suggesting that experience and recognition as a superior teacher will be accompanied by favorable assessments on the variables of this instrument. Moreover, there also appears to be a positive relationship between favorable assessments on the COR and the type of training experienced by the Interns. There is a likelihood, however, that variables which were uncontrollable in this study might be influencing the results. In view of this possibility, one should be advised to treat these results conservatively.

This study characterizes Graduate Interns as a group of teachers who are warm and friendly toward pupils. They are teachers who can be stimulating, yet systematic and businesslike in their conduct of lessons. Their prevailing teaching style is most conducive to operant conditioning type of learning and is seriously lacking in approaches that encourage creative inquiry among pupils. They talk just about as much as the average teacher and are sensitive to their pupil's needs for praise and encouragement. The latter is most commendable in teachers of children from inner city schools. On the other hand, they exhibit very little verbal acceptance of feelings of pupils.

The findings and procedures reported in Chapters 2, 3, and 4 should serve as a useful model for follow-up procedures for product evaluation. The second objective of the study regarding the feasibility of such an objective follow-up has been thoroughly tested. Results demonstrate that school system personnel can be called upon to aid in an objective follow-up of colleagues for the purpose of providing feedback to a training institution. The observers demonstrated conclusively that personnel from within the school system are capable of the objectivity demanded for valid assessment. They were apt students of the observational procedures and responded favorably to the training program. At this point in time they represent a potential asset to other follow-up studies in this area. Use of a trained team such as this could materially reduce the expense of this type of follow-up. Re-training requirements would be minimal.

If there is any reservation about school system cooperation in an objective follow-up, it would be with respect to the following:

1. Compromise in objectivity for practical considerations in the conduct of a follow-up within the normal operation of the schools is ever present. Although endangered in several instances, sufficient objectivity was maintained in this study, but future efforts should be aware of the ever present possibility of seriously impairing the design of a study by practical considerations in arranging a follow-up in the schools.

2. Agreement to cooperate must be obtained at many levels, from the Deputy Superintendent's office to each teacher who will be asked to participate. Cooperation among the teachers is most sensitive and was a constant source of potential abortion of the study. For the most part, the investigators in this study feel that they had extraordinary cooperation throughout and that the assistance by the Area offices was strategic to the success of the project.

Recommendations

If the diagnostic values of the data compiled in this study are to be fulfilled, the next step is to identify the components of the Teacher Corps curriculum which may exert some influence on the characteristics observed in the Graduate Interns. This is a task for the curriculum makers. Program modifications or changes and reinforcement of productive approaches existing in the program should be made relative to these findings:

1. The positive behaviors on Teacher Behavior Patterns X, Y, and Z and Pupil Behavior. What in the Teacher Corps program could account for the Interns favorable showing compared to the randomly selected teachers? Could inherent qualities in personality be the source for differences? If future trainees are to be modeled after those who have persisted in teaching positions in inner city schools, should curriculum be the major area of reform or might improved screening procedures be more productive? If correlates of high predictive validity for these teaching behaviors are found, the time consuming and expensive process of direct observation could be done periodically instead of continuously. There is in this the suggestion that reliable assessment inventories, tests and screening techniques which correlate highly with these behavior variables may serve an important function in finding those who would find satisfaction and be satisfactory

in teaching in inner city schools.

2. Curriculum makers should be concerned with the lack of verbal behavior among Interns that encourages creative inquiry among pupils. Although it is generally found in all three groups, it may still be amenable to a professional training program which emphasizes development of verbal skills in accepting pupil ideas and encouraging pupils to show initiative in responses. That Interns, along with all other teachers, are capable of learning a particular style in teaching is apparent in the uniform use of a pattern found in this study. Somewhere, through some kind of experiences, all (superior, Intern and random teacher) are being conditioned to behave in the predominant 4-8-2 verbal teaching pattern. With appropriate leadership and opportunity, it would appear that they could also learn how to teach for greater creativity of expression among their pupils. Recommended procedures such as those by Flanders (13, 94) on how to start a creative inquiry pattern from an established question and answer pattern may have some value here. Suggestions like his represent the kind of experiences that may be incorporated into future curricula.

3. Careful study should be made also of the possibility of incorporating into professional training more human relations sessions designed to help teachers show more empathy for children. Reflecting children's feelings is virtually non-existent in the behaviors observed in this study.

These recommendations would appear to be important as well to directors of in-service programs for teachers. Perhaps implementation at this level will be the most productive. In a period of increased dissatisfaction with the image of the teacher as a dispenser of knowledge, and in light of the growing awareness of the unique needs of inner city children, recommendations 2 and 3 seem most pertinent to the in-service education of teachers.

APPENDIX

Table 16

Frequency Distribution of Teacher Behavior Pattern X
on Classroom Observation Record

	Graduates	Control 1 (Sup)	Control 2 (Random)
Mean	23.65	24.84	22.33
SD	3.81	3.34	3.05
Q3	26.36	27.70	24.75
Q2	24.93	25.10	23.00
Q1	20.75	22.17	20.30
T score Q3	57.10	58.57	57.80
T score Q2	53.36	50.24	52.17
T score Q1	42.39	42.00	43.21
Range	(14.0-29.0)	(19.5-33.5)	(13.0-27.5)

Table 17

Frequency Distribution of Teacher Behavior Pattern Y
on Classroom Observation Record

	Graduates	Control 1 (Sup)	Control 2 (Random)
Mean	23.04	25.90	22.20
SD	3.92	3.06	2.98
Q3	26.17	28.17	24.50
Q2	23.50	26.50	22.79
Q1	20.83	23.90	20.75
T score Q3	57.98	57.41	57.72
T score Q2	51.18	51.96	51.98
T score Q1	44.38	43.46	45.14
Range	(11.0-29.5)	(19.0-34.0)	(14.5-27.5)

Table 18

Frequency Distribution of Teacher Behavior Pattern Z
on Classroom Observation Record

	Graduates	Control 1 (Sup)	Control 2 (Random)
Mean	8.71	9.53	8.45
SD	1.79	1.32	1.30
Q3	10.19	10.50	8.90
Q2	8.60	9.44	7.95
Q1	7.99	8.83	7.50
T score Q3	58.22	57.37	53.46
T score Q2	49.37	49.39	46.15
T score Q1	45.98	44.77	42.69
Range	(4.5-13.5)	(7.5-13.0)	(6.0-12.0)

Table 19

Frequency Distribution of Total Teacher Behavior on Classroom Observation Record

	Graduates	Control 1 (Sup)	Control 2 (Random)
Mean	82.95	90.18	79.94
SD	13.20	10.59	9.72
Q3	92.50	96.36	88.17
Q2	86.39	90.64	80.70
Q1	73.50	82.83	73.50
T score Q3	57.23	55.84	58.47
T score Q2	52.61	50.44	50.78
T score Q1	42.84	43.06	43.38
Range	(46.5-105.0)	(70.0-122.5)	(57.0-97.0)

Table 20

Frequency Distribution of Total Pupil Behavior on Classroom Observation Record

	Graduates	Control 1 (Sup)	Control 2 (Random)
Mean	17.44	19.10	16.68
SD	3.25	2.82	2.51
Q3	20.17	21.33	28.83
Q2	17.33	19.67	16.87
Q1	15.21	17.10	15.25
T score Q3	58.40	57.91	58.59
T score Q2	49.68	52.00	50.80
T score Q1	43.16	42.92	44.32
Range	(9.5-23.0)	(13.5-17.0)	(11.5-21.5)

Table 21

Frequency Distribution of Total Instrument on Classroom Observation Record

	Graduates	Control 1 (Sup)	Control 2 (Random)
Mean	100.40	109.29	96.61
SD	15.76	12.81	11.75
Q3	109.50	117.50	106.17
Q2	102.83	109.50	98.25
Q1	89.50	98.50	89.50
T score Q3	55.77	56.41	58.13
T score Q2	51.33	50.17	51.39
T score Q1	43.08	41.58	43.95
Range	(56.0-127.5)	(83.5-149.5)	(69.0-116.0)

Table 22

Quartiles and Ranges for the Three Groups on
Flanders Interaction Analysis Categories

Variables*	Cat. 2 %	Cat. 3 %	Cat. 4 %	Cat. 5 %	Cat. 6 %	Cat. 7 %	Cat. 8 %	Cat. 9 %	Cat. 10 %
Graduates									
Q3	7.70	1.40	17.50	36.00	4.17	4.45	30.50	8.50	19.50
Q2	6.15	0.75	15.30	27.50	2.70	2.83	20.00	5.21	10.50
Q1	4.45	0.40	12.00	21.00	1.70	0.95	12.50	2.70	5.21
Range	1.6-11.6	0-3.2	5.1-21.9	10.3-64.1	0.1-16.3	0.4-8.0	4.1-47.2	0.2-27.5	2.6-35.3
Control 1 (superior)									
Q3	7.20	1.40	19.25	33.50	5.50	3.70	28.50	7.50	17.50
Q2	5.95	0.65	14.17	28.00	2.64	1.78	20.50	3.50	11.90
Q1	3.35	0.20	11.78	22.21	1.68	0.95	14.50	1.68	8.83
Range	0.5-12.5	0.1-5.0	5.1-27.9	3.2-60.0	0.5-11.8	0.1-7.6	3.7-60.0	0.1-66.7	2.4-43.5
Control 2 (Random)									
Q3	8.12	0.97	18.50	37.00	5.00	3.95	27.50	6.70	18.50
Q2	6.15	0.65	15.75	29.30	2.93	2.45	19.83	3.75	12.38
Q1	3.83	0.19	12.25	22.00	1.60	1.25	14.50	1.90	8.00
Range	0.4-15.9	0.1-2.6	3.7-23.7	10.2-66.1	0.2-14.4	0.2-10.3	2.9-37.4	0.1-30.6	2.4-56.1

* Category 1 is so rare these statistics would be meaningless.

Table 22 Continued

Variables	Teacher Talk Percent	Student Talk Percent
Graduates		
Q3	67.00	36.50
Q2	59.50	27.00
Q1	49.00	19.00
Range	36.4-79.7	11.8-56.8
Control 1 (Superior)		
Q3	66.70	32.50
Q2	58.30	26.50
Q1	49.00	20.70
Range	17.5-75.1	14.1-76.0
Control 2 (Random)		
Q3	66.70	31.10
Q2	60.36	28.17
Q1	50.50	18.83
Range	33.2-82.4	8.7-48.5

Table 23

Summary Table for Analysis of Variance for Study Variables

Variables	Teacher Corps Interns		Control 1 (Superior)		Control 2 (Random)		F
	Mean	SD	Mean	SD	Mean	SD	
C.O.R.							
PUPIL BEHAVIOR							
1. Apathetic-Alert	4.375	0.86	4.963	0.82	4.213	0.77	9.11***
2. Obstructive-Responsible	4.475	0.92	4.975	0.77	4.238	0.81	7.95***
3. Uncertain-Confident	4.300	0.85	4.650	0.76	4.125	0.66	4.78*
4. Dependent-Initiating	4.275	0.91	4.525	0.81	4.10	0.57	2.94
TEACHER BEHAVIOR							
5. Partial-Fair	4.763	0.77	5.013	0.68	4.638	0.63	2.89
6. Autocratic-Democtratic	4.788	0.73	4.888	0.65	4.488	0.63	3.63*
7. Aloof-Responsive	4.738	0.89	5.000	0.69	4.475	0.71	4.54*
8. Restricted-Understanding	4.875	0.87	5.063	0.71	4.500	0.73	5.34**
9. Harsh-Kindly	4.763	0.82	4.988	0.80	4.538	0.74	3.18*
10. Dull-Stimulating	4.350	0.92	4.775	0.67	4.238	0.71	5.22**
11. Stereotyped-Original	4.363	0.91	4.750	0.72	4.213	0.64	5.15**
12. Apathetic-Alert	4.663	0.73	5.138	0.63	4.588	0.71	7.22**

* p = .05; ** p = .01; *** p = .001

Table 23 (Continued)

Variables	Teacher Corps Interns		Control 1 (Superior)		Control 2 (Random)		F
	Mean	SD	Mean	SD	Mean	SD	
13. Unimpressive-Attractive	4.550	0.71	5.088	0.61	4.525	0.57	9.78***
14. Evading-Responsible	4.563	0.81	5.175	0.67	4.488	0.69	12.10***
15. Erratic-Steady	4.613	0.89	5.213	0.67	4.488	0.69	10.20***
16. Excitable-Poised	4.788	0.78	5.338	0.62	4.563	0.56	14.24***
17. Uncertain-Confident	4.625	0.88	5.250	0.66	4.488	0.66	11.78***
18. Disorganized-Systematic	4.600	0.86	5.200	0.70	4.450	0.72	10.55***
19. Inflexible-Adaptable	4.563	0.81	4.875	0.73	4.400	0.64	4.26*
20. Pessimistic-Optimistic	4.513	0.74	4.900	0.73	4.338	0.52	7.18**
21. Immature-Integrated	4.438	0.67	4.788	0.68	4.313	0.53	5.92**
22. Narrow-Broad	4.425	0.63	4.738	0.77	4.238	0.49	6.12**
23. TOTAL PUPIL BEHAVIOR	17.438	3.25	19.113	2.82	16.675	2.51	7.32**
24. TOTAL TEACHER BEHAVIOR	82.950	13.20	90.175	10.59	79.938	9.72	8.47***
25. TOTAL COR	100.400	15.76	109.288	12.81	96.613	11.75	8.89***
Flanders I.A.							
26. % Category 1	.053	0.15	0.082	0.20	0.010	0.06	2.38
27. % Category 2	6.310	2.45	5.916	2.88	6.300	3.01	0.25

* p = .05; ** p = .01; *** p = .001

Table 23 (Continued)

Variables	Teacher Corps Interns Mean	SD	Control 1 (Superior) Mean	SD	Control 2 (Random) Mean	SD	F
28. % Category 3	0.980	0.79	0.753	0.96	0.753	0.74	0.96
29. % Category 4	14.734	4.50	14.956	4.98	15.342	4.53	0.17
30. % Category 5	29.941	12.43	28.498	10.12	30.093	11.00	0.25
31. % Category 6	3.564	3.27	3.429	2.57	3.746	3.13	0.11
32. % Category 7	3.070	2.13	2.390	1.95	2.856	2.10	1.11
33. % Category 8	21.522	11.05	22.364	11.54	20.852	8.76	0.20
34. % Category 9	6.423	5.61	6.739	11.04	5.058	5.07	0.53
35. % Category 10	13.405	8.86	14.872	9.49	14.989	9.91	0.34
36. Percent Teacher Talk	58.650	10.94	56.023	13.24	59.101	10.14	0.83
37. Percent Student Talk	27.945	10.94	29.102	13.15	25.905	8.71	0.83
38. Indirect-direct Ratio	0.315	0.10	0.313	0.10	0.310	0.11	0.03
39. Revised Indirect-Direct Ratio	0.555	0.18	0.572	0.17	0.536	0.15	0.46
40. Student/Teacher Ratio	0.518	0.28	0.647	0.70	0.463	0.21	1.71
41. Sum of Indirect	64.200	23.65	59.700	24.59	61.750	26.34	0.32
42. Sum of Direct	319.325	101.84	302.300	93.94	323.550	99.05	0.51

* p = .05; ** p = .01; *** p = .001

Table 23 (Continued)

Variables	Teacher Corps Interns Mean	SD	Control 1 (Superior) Mean	SD	Control 2 (Random) Mean	SD	F
43. Matrix (5-5)	187.951	102.16	180.526	80.81	188.851	92.23	0.10
44. Matrix (3-3)	0.260	0.54	0.276	0.59	0.151	0.53	0.56
45. Matrix (7-7)	4.526	6.39	3.301	5.54	4.176	6.39	0.41
46. Extended Indirect	1.701	2.47	1.351	1.84	1.226	1.86	0.55
47. Extended Direct	15.376	17.15	10.951	11.08	15.401	12.78	1.32
48. Matrix (6-10)	6.026	5.66	6.226	5.15	6.651	6.26	0.12
49. Matrix (4-10)	8.876	6.82	8.451	4.75	9.426	8.45	0.20
50. Matrix (7-10)	2.876	3.68	2.451	2.97	2.776	2.96	0.19
51. Sum Matrix (6-10) +(4-10)+(7-10)	17.776	11.39	17.126	8.59	18.851	11.51	0.26
52. Sum Matrix (4-2) +(5-2)+(6-2)	1.251	1.34	1.051	1.52	0.851	1.11	0.88
53. Sum Matrix (2-2) +(2-3)+(8-2)+(9-2)	51.926	21.81	49.126	24.54	51.301	23.93	0.16
54. Total of Tallies	875.700	57.80	878.875	53.43	876.65	52.85	0.06
55. Sex M=1; F=2	1.325	0.47	1.700	0.46	1.625	0.48	6.94**
56. Race White=1; Black=2	1.300	0.46	1.60	0.49	1.350	0.48	4.46*

* p = .05; ** p = .01; ** p = .001

Table 23 (Continued)

Variables	Teacher Corps Interns		Control 1 (Superior)		Control 2 (Random)		F
	Mean	SD	Mean	SD	Mean	SD	
1. "X" Type Score	23.65	3.81	24.84	3.34	22.33	3.05	5.25**
2. "Y" Type Score	23.04	3.92	25.90	3.06	22.20	2.98	13.13***
3. "Z" Type Score	8.71	1.79	9.53	1.32	8.45	1.30	5.54**

* p = .05; ** p = .01; *** p = .001

Table 24

Composite FIA Matrix for Control Group 1

	1	2	3	4	5	6	7	8	9	10	
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2	0.0	0.1	0.0	2.1	2.6	0.3	0.1	0.1	0.1	0.4	
3	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.1	0.0	
4	0.0	0.0	0.0	2.6	0.6	0.3	0.2	8.9	1.3	1.0	
5	0.0	0.1	0.0	4.2	20.6	0.9	0.3	0.4	0.8	1.0	
6	0.0	0.0	0.0	0.4	0.4	0.7	0.1	0.9	0.1	0.7	
7	0.0	0.0	0.0	0.6	0.5	0.1	0.4	0.4	0.1	0.3	
8	0.0	5.3	0.1	2.7	1.2	0.5	1.0	10.6	0.1	0.5	
9	0.0	0.2	0.6	0.7	0.8	0.1	0.2	0.0	3.5	0.4	
10	0.0	0.2	0.0	1.5	1.5	0.4	0.3	1.0	0.6	10.5	Matrix Total
TOTAL	28	2098	262	5299	10032	1212	848	7830	2347	5160	35,116
%	0.1	6.0	0.7	15.1	28.6	3.5	2.4	22.3	6.7	14.7	

Teacher Talk	19,779
Student Talk	10,177
S/T Ratio	0.515
% Student Talk	28.981
% Teacher Talk	56.325
I/D Ratio	0.308
Rev. I/D Ratio	0.540

Table 25

Composite FIA Matrix for Control Group 2

	1	2	3	4	5	6	7	8	9	10	
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2	0.0	0.1	0.0	2.2	2.8	0.4	0.0	0.3	0.1	0.3	
3	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.1	0.0	
4	0.0	0.0	0.0	2.1	0.6	0.3	0.3	9.6	1.2	1.1	
5	0.0	0.1	0.0	4.6	21.6	0.9	0.3	0.5	0.8	1.1	
6	0.0	0.0	0.0	0.4	0.5	1.0	0.1	0.8	0.1	0.8	
7	0.0	0.0	0.0	0.7	0.5	0.2	0.5	0.5	0.2	0.3	
8	0.0	5.7	0.1	2.9	1.3	0.5	1.0	8.5	0.1	0.3	
9	0.0	0.2	0.6	0.6	1.0	0.1	0.3	0.0	1.9	0.2	
10	0.0	0.2	0.0	1.5	1.9	0.4	0.3	0.6	0.5	10.7	Matrix Total
TOTAL	3	2206	261	5384	10615	1312	1015	7298	1771	5184	35,049
%	0.0	6.3	0.7	15.4	30.3	3.7	2.9	20.8	5.1	14.8	

Teacher Talk	20,796
Student Talk	9,069
S/T Ratio	0.436
% Student Talk	25.875
% Teacher Talk	59.334
I/D Ratio	0.302
Rev. I/D Ratio	0.515

Table 26

Comparison Between Graduate Teacher Corps and Urban Corps Groups Sponsored by the Chicago Consortium

Variables[1]	Teacher Corps (N=24) Mean	SD	Urban Corps (N=16) Mean	SD	t ratio
1	4.42	0.75	4.31	0.75	0.37
2	4.48	0.73	4.47	1.15	0.03
3	4.25	0.68	4.41	1.05	-0.56
4	4.29	0.78	4.25	1.08	0.14
5	4.85	0.62	4.66	0.95	0.78
6	4.83	0.60	4.59	0.87	1.18
7	4.85	0.76	4.56	1.04	1.00
8	5.02	0.74	4.66	1.00	1.29
9	4.90	0.72	4.56	0.92	1.25
10	4.44	0.70	4.22	1.17	0.72
11	4.48	0.57	4.19	1.24	0.98
12	4.77	0.58	4.50	0.88	1.14
13	4.67	0.49	4.38	0.93	1.26
14	4.73	0.58	4.31	1.01	1.61
15	4.67	0.61	4.53	1.19	0.46
16	4.90	0.63	4.63	0.94	1.06
17	4.71	0.76	4.50	1.02	0.77
18	4.69	0.64	4.47	1.10	0.77
19	4.77	0.65	4.25	0.92	2.05*
20	4.67	0.55	4.28	0.90	1.63
21	4.54	0.54	4.28	0.81	1.19
22	4.50	0.50	4.31	0.77	0.91
23	17.44	2.56	17.44	4.07	0.00
24	85.02	9.76	79.88	16.64	1.21
25	102.46	11.21	97.31	20.42	1.00
26	0.04	0.09	0.07	0.20	-0.49
27	6.32	2.48	6.30	2.41	0.02
28	1.29	0.85	0.52	0.40	3.27**
29	14.77	4.02	14.67	5.13	0.07
30	30.77	11.65	28.70	13.42	0.50
31	3.40	3.05	3.81	3.57	-0.38
32	2.74	1.99	3.56	2.23	-1.19
33	20.18	10.92	23.53	10.94	-0.93
34	7.29	6.01	5.12	4.66	1.20
35	13.20	8.79	13.71	8.96	-0.18
36	59.32	10.35	57.64	11.69	0.47
37	27.48	12.00	28.65	9.06	-0.32
38	0.32	0.11	0.31	0.09	0.41
39	0.59	0.19	0.51	0.15	1.31
40	0.51	0.30	0.54	0.24	-0.35

1 Variables numbered as in table 23.

* p = .05; ** p = .01

Table 26
(Continued)

Variables[1]	Teacher Corps (N =24) Mean	SD	Urban Corps (N=16) Mean	SD	t ratio
41	66.42	23.65	60.88	23.25	0.71
42	319.83	100.82	318.56	103.36	0.04
43	191.25	92.96	183.00	114.41	0.24
44	0.29	0.54	0.19	0.53	0.59
45	3.54	6.04	6.00	6.60	-1.18
46	2.13	2.28	1.06	2.61	1.33
47	15.58	20.32	15.06	10.75	0.09
48	6.17	5.93	5.81	5.23	0.19
49	8.17	5.00	9.94	8.76	-0.79
50	2.29	3.72	3.75	3.34	-1.22
51	16.63	11.59	19.50	10.55	-0.79
52	1.50	1.50	0.88	0.93	1.45
53	50.79	21.92	53.63	21.63	-0.39
54	869.71	52.32	884.69	64.11	-0.79
55	1.43	0.49	1.19	0.39	1.52
56	1.42	0.49	1.13	0.33	2.02

[1] Variables numbered as in Table 23

Table 27

Sex and Race Correlations with Study Variables on the Classroom Observation Record

Variables[1]	Graduates		Control 1		Control 2	
	Sex	Race	Sex	Race	Sex	Race
1.	-.02	-.03	.17	-.04	.32**	.00
2.	.05	-.01	.16	-.06	.13	.11
3.	-.16	-.08	.17	-.01	.11	-.02
4.	-.09	-.02	.09	.15	.23	.05
5.	-.01	-.13	-.03	.05	.09	-.24*
6.	-.03	-.01	-.07	.13	.03	-.19
7.	-.09	-.08	-.12	.04	.19	-.16
8.	-.21	-.09	-.10	.07	.11	-.18
9.	-.03	.06	-.01	.15	.04	-.25*
10.	-.09	-.13	.15	.11	.30*	-.10
11.	.02	.05	.15	.07	.30*	-.20
12.	01	.11	-.07	.06	.28*	-.20
13.	.14	.07	.18	.12	.35**	-.03
14.	.05	.08	.01	.02	.35**	.05
15.	.06	-.05	-.08	-.08	.06	-.14
16.	.02	.00	-.13	.03	.18	-.18
17.	-.04	.00	-.04	.00	.18	-.11
18.	.11	.05	.07	.02	.23	-.06
19.	-.02	.02	.11	.21	.12	-.17
20.	.02	.06	.10	.27*	.21	-.02
21.	.02	.06	.00	.16	.26*	-.14
22.	.00	-.05	.06	.29*	.32**	.02
23. Pupil Beh.	-.06	-.04	.16	.01	.22	.04
24. Teacher Beh.	.01	.00	.11	.23	.23	-.16
25. Total COR	-.02	.03	.03	.10	.24	-.12
X type	-.08	-.02	-.04	.14	.11	.17
Y type	.06	.01	.01	-.03	.20	-.03
Z type	-.04	-.09	.16	.09	.31*	-.15

** Significant at .01 level
* Significant at .05 level
[1] Variables numbered as in Table 23.

Table 28

Sex and Race Correlations with Study Variables on the Flanders Interaction Analysis

Variables[1]	Graduates		Control 1		Control 2	
	Sex	Race	Sex	Race	Sex	Race
26.	.09	-.10	.05	.16	.12	.22
27.	.38**	.07	.07	-.16	.29*	-.05
28.	-.18	.07	.09	.14	.02	.21
29.	-.12	.06	-.08	.00	.17	.18
30.	-.12	.16	-.44**	-.30**	-.03	-.18
31.	.36**	.16	.18	-.07	.36**	.09
32.	.04	-.20	.03	-.18	.17	.13
33.	.08	-.23	.27*	.23	-.13	-.03
34.	-.36**	-.07	.06	.17	-.08	-.07
35.	.12	.11	.04	-.04	-.11	.14
36.	.00	.18	-.30*	-.28*	.26	-.07
37.	-.10	-.27*	.27*	.31**	-.17	-.08
38.	-.03	-.16	.16	.17	.13	.07
39.	-.08	.02	-.17	-.03	-.10	-.10
40.	-.10	-.26	.22	.26	-.26	-.06
41.	.27*	.05	.06	-.18	.24	-.04
42.	-.02	.16	-.37**	-.37**	.06	-.22
43.	-.13	.14	-.42**	-.21	-.10	-.20
44.	-.12	-.20	.12	.21	.02	.09
45.	.03	-.14	.08	-.10	-.05	.03
46.	.24	.01	.09	.10	.23	.28*
47.	.12	.21	.08	.03	.25*	.29*
48.	.32*	.23	.23	.09	.18	.19
49.	.02	-.04	-.22	-.28*	.20	.37**
50.	.14	.05	-.03	-.12	.19	.29*
51.	.22	.11	.00	-.14	.29*	.45**
52.	.23	.24	.13	.03	.13	-.14
53.	.27*	-.02	.04	-.20	.33**	-.07
54.	-.03	-.04	-.17	-.28*	-.16	-.37**

[1] Variables numbered as in Table 23.
** Significant at .01 level
* Significant at .05 level

Table 29

Analysis of Covariance for Selected Study Variables

Variables	Unadjusted F Ratio	Adjusted F Ratio
Adjustment for uncontrolled variable: Sex of Teacher		
13. (COR) Unimpressive - Attractive	9.78***	7.98**
14. (COR) Evading-Responsible	12.10***	10.77***
22. (COR) Narrow-Broad	6.12**	5.73**
27. (FIA) % Category 2	0.25	1.03
30. (FIA) % Category 5	0.25	0.20
31. (FIA) % Category 6	0.11	0.81
34. (FIA) % Category 9	0.53	0.53
41. (FIA) Sum of Indirect	0.32	1.02
42. (FIA) Sum of Direct	0.51	0.39
48. (FIA) Matrix 6-10	0.12	0.25
53. (FIA) Sum of Matrix 2-2; 2-3;8-2;9-2	0.16	0.77
Adjustment for uncontrolled variable: Race of Teacher		
36. (FIA) Student Talk %	0.83	0.75
42. (FIA) Sum of Direct	0.51	0.19
49. (FIA) Matrix 4-10	0.20	0.31
51. (FIA) Sum of Matrix 6-10; 4-10;7-10	0.26	0.59
54. (FIA) Total Tallies	0.06	0.46

** p = .01; *** p = .001

Table 30

Measures of Skewness and Kurtosis on Study Variables*

Variable[1]	Graduates Skewness	Graduates Kurtosis	Control 1 Skewness	Control 1 Kurtosis	Control 2 Skewness	Control 2 Kurtosis
1.	-0.30	-0.92	0.15	-0.39	-0.11	-0.44
2.	-0.43	-0.45	-0.13	-0.91	-0.47	-0.64
3.	0.29	-0.51	0.60	0.45	-0.14	-0.04
4.	0.03	-0.54	-0.65	2.38	0.00	-0.66
5.	-0.32	-0.56	-0.29	-0.82	0.21	-0.95
6.	-0.19	-0.78	0.28	-0.66	-0.56	0.73
7.	-0.50	-0.37	-0.11	-0.81	-0.55	0.57
8.	-0.44	-0.86	0.20	-0.25	-0.38	0.32
9.	-0.23	-0.82	0.26	-0.61	-0.27	0.12
10.	0.13	-0.47	0.86	0.50	0.34	0.53
11.	0.09	0.95	0.56	-0.49	0.52	0.42
12.	0.01	-0.68	0.59	0.25	-0.16	-0.30
13.	-0.49	1.06	0.81	0.84	0.00	0.77
14.	-0.84	0.96	0.10	-0.10	-0.42	-0.49
15.	-0.61	0.21	0.07	0.25	-0.29	-0.07
16.	-0.34	-0.62	-0.08	0.17	-0.46	0.18
17.	-0.27	-0.69	0.19	-0.39	-0.55	0.46
18.	-0.66	0.44	0.04	-0.46	-0.42	0.36
19.	-0.52	-0.33	0.49	0.06	-0.19	-0.46
20.	-0.56	0.86	0.72	0.19	-0.41	0.58
21.	-0.14	1.11	1.04	1.11	0.17	0.02
22.	0.21	0.18	0.25	1.56	-0.26	-0.36
23.	-0.07	-0.57	0.21	-0.06	-0.17	-0.54
24.	-0.53	0.04	0.50	0.74	-0.39	-0.50
25.	-0.50	0.22	0.51	0.93	-0.33	-0.35
26.	4.11	18.24	3.61	14.17	6.08	35.03
27.	0.29	-0.41	0.43	-0.35	0.74	0.91
28.	1.04	0.18	2.50	7.36	1.18	0.34
29.	-0.34	-0.69	0.32	-0.22	-0.26	-0.13
30.	0.65	0.13	0.42	1.43	0.75	1.07
31.	2.07	4.86	1.08	0.75	1.71	2.82
32.	0.55	-0.59	1.08	0.20	1.24	2.00
33.	0.41	-0.75	1.19	1.60	-0.04	-0.59
34.	1.81	3.60	4.22	19.63	3.17	13.39
35.	0.88	-0.09	1.49	1.94	1.99	5.31
36.	-0.08	-1.01	-0.87	0.43	-0.34	0.08
37.	0.55	-0.34	1.66	2.91	0.11	-0.30
38.	-0.13	-0.73	0.41	0.10	0.04	0.47
39.	-0.03	-0.63	0.06	-0.89	0.01	0.16
40.	0.90	0.65	3.91	17.03	0.75	0.16
41.	0.53	0.42	0.14	-0.73	0.35	-0.13
42.	0.80	0.65	-0.28	0.76	0.65	0.44

* With N=40, S.E. of Skewness = 0.3873; S.E. of Kurtosis = 0.7746

[1] Variables numbered as in Table 23.

Table 30
(Continued)

Variables	Graduates Skewness	Graduates Kurtosis	Control 1 Skewness	Control 1 Kurtosis	Control 2 Skewness	Control 2 Kurtosis
43.	1.07	1.20	0.92	1.95	1.21	2.47
44.	2.07	3.29	2.74	8.78	4.25	18.93
45.	1.87	2.86	2.25	4.28	2.14	4.18
46.	1.79	2.76	2.11	5.39	2.03	4.08
47.	2.33	7.24	1.53	1.84	1.08	0.99
48.	1.70	3.08	1.29	2.02	1.44	1.34
49.	1.32	1.53	0.96	1.29	3.18	13.34
50.	1.33	0.90	1.49	1.41	1.76	3.60
51.	1.40	2.75	0.08	-0.73	1.30	2.21
52.	1.23	1.05	1.42	0.71	1.73	3.24
53.	0.38	-0.39	0.38	-0.58	0.81	1.16
54.	0.32	0.40	0.36	0.35	0.26	-2.19
55.	0.75	-1.44	-0.87	-1.24	-0.52	-1.73
56.	0.87	-1.24	-0.41	-1.83	0.63	-1.60

Table 31

Summary of Categories for Interaction Analysis

1. ACCEPTS FEELING: accepts and clarifies the feeling tone of the students in a nonthreatening manner. Feelings may be positive or negative. Predicting or recalling feelings is included.

2. PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension, but not at the expense of another individual; nodding head, or saying "um hm?" or "go on" are included.

3. ACCEPTS OR USES IDEAS OF STUDENTS: clarifying, building, or developing ideas suggested by a student. As teacher brings more of his own ideas into play, shift to Category 5.

4. ASKS QUESTIONS: asking a question about content or procedure with the intent that a student answer.

5. LECTURING: giving facts or opinions about content or procedures; expressing his own ideas, asking rhetorical questions.

6. GIVING DIRECTIONS: directions, commands, or orders with which a student is expected to comply.

7. CRITICIZING OR JUSTIFYING AUTHORITY: statements intended to change student behavior from nonacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference.

8. STUDENT TALK - RESPONSE: talk by students in response to teacher. Teacher initiates the contact or solicits student statement.

9. STUDENT TALK - INITIATION: talk by students, which they initiate. If "calling on" student is only to indicate who may talk next, observer must decide whether student wanted to talk. If he did, use this category.

10. SILENCE OR CONFUSION: pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the observer.

Table 32

Classroom Observation Record

Teacher _____ No _____ Class _____ Date _____

City _____ School _____ Time _____ Observer _____

PUPIL BEHAVIOR									
1. Apathetic	1	2	3	4	5	6	7	N	Alert
2. Obstructive	1	2	3	4	5	6	7	N	Responsible
3. Uncertain	1	2	3	4	5	6	7	N	Confident
4. Dependent	1	2	3	4	5	6	7	N	Initiating
TEACHER BEHAVIOR									
5. Partial	1	2	3	4	5	6	7	N	Fair
6. Autocratic	1	2	3	4	5	6	7	N	Democratic
7. Aloof	1	2	3	4	5	6	7	N	Responsive
8. Restricted	1	2	3	4	5	6	7	N	Understanding
9. Harsh	1	2	3	4	5	6	7	N	Kindly
10. Dull	1	2	3	4	5	6	7	N	Stimulating
11. Stereotyped	1	2	3	4	5	6	7	N	Original
12. Apathetic	1	2	3	4	5	6	7	N	Alert
13. Unimpressive	1	2	3	4	5	6	7	N	Attractive
14. Evading	1	2	3	4	5	6	7	N	Responsible
15. Erratic	1	2	3	4	5	6	7	N	Steady
16. Excitable	1	2	3	4	5	6	7	N	Poised
17. Uncertain	1	2	3	4	5	6	7	N	Confident
18. Disorganized	1	2	3	4	5	6	7	N	Systematic
19. Inflexible	1	2	3	4	5	6	7	N	Adaptable
20. Pessimistic	1	2	3	4	5	6	7	N	Optimistic
21. Immature	1	2	3	4	5	6	7	N	Integrated
22. Narrow	1	2	3	4	5	6	7	N	Broad

Appendix B: Letters from Area Superintendents Office

Copy of Letter to District Superintendents

Dear

The following schools in your district are being asked to cooperate in a follow-up study of National Teacher Corps graduates. The purpose and design of the study are given in the enclosed materials.

I would appreciate your cooperation in forwarding the materials designated for each of the concerned schools. This is a statistical study of teaching styles and in no case will any teacher be identified by name. Only the names of Teacher Corps graduates will be recorded for control purposes.

Your cooperation, and that of your principals, in this worthwhile project will help to provide information that will facilitate the improvement of Teacher Training programs servicing the Chicago Public Schools.

Sincerely,

Copy of Letter to Principals

Dear

The National Teacher Corps has been providing teachers for the Chicago Public Schools for several years. The Board of Education has actively participated in the training of these teachers, and now is asked to cooperate in a federally funded follow-up study of their classroom performance. This is an important part of the Teacher Corps program and is aimed at providing feedback which will aid the Chicago Consortium of Colleges and Universities in developing new training programs for future Chicago teachers. The enclosed outline will provide an overview of the purpose and design of the study, and will indicate sources for additional information, if desired.

The Office of the Deputy Superintendent of Schools has given approval for the study, and this office has agreed to the involvement of school personnel in this area. Four observers, designated by the Area Superintendents, are currently studying the use of scientific observational techniques and will soon be ready to use them in the actual follow-up. The observers are Mr. Herman Stepto, Mr. Dan Simons, Mr. James McCarthy and Mr. Robert Nesbitt. All are Chicago Public School personnel.

A graduate of the Teacher Corps program,_____, is now teaching in your school. Will you please give the observers your kind cooperation in arranging for one of them to observe this teacher? You should anticipate also that the observer will wish to observe two other teachers to serve as controls in the study. One is to be a teacher whom you judge to be clearly superior in performance, with three or more years of teaching experience and not over fifty years of age; the other selected at random from teachers with the same years of teaching experience as the Teacher Corps graduate. This is a statistical study of teaching styles and in no case will participating teachers be identified by name. The record of observations will be used for no other purpose than as raw data for the study. Thank you for your cooperation.

Sincerely,

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